CHAPTER: 2

STUDY OF MANAGEMENT PLANNING AND CONTROL SYSTEM

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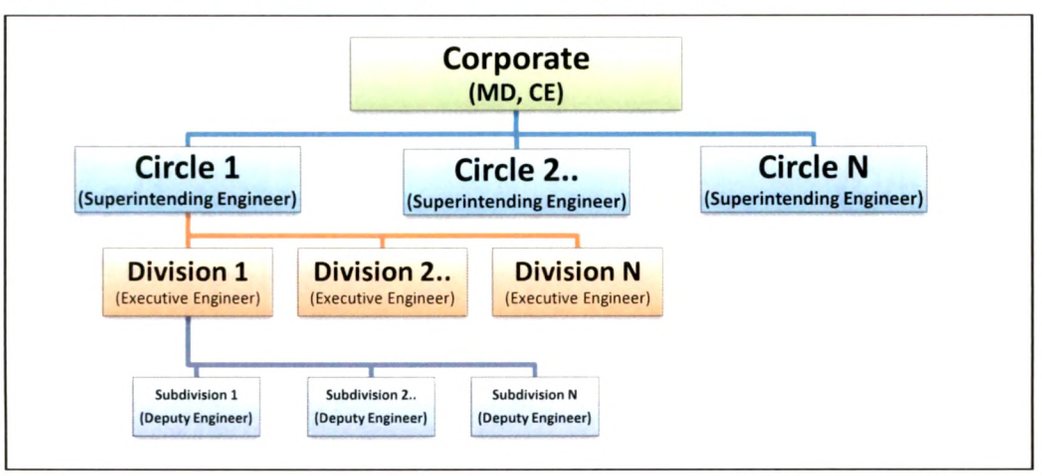
2. STUDY OF MANAGEMENT PLANNING AND CONTROL SYSTEM

Power distribution companies in India are reportedly incurring huge distribution losses. Hence, priority is given to the plan to reduce losses to 15% & 10% respectively by the end of the XI and XII Five Years Plan[1]. This calls for refurbishing management planning and control system among other measures. In turn, it is required to carry out an analysis of the existing system to identity weaknesses and areas of improvements in it. For the purpose, the SWOT analysis is planned to evaluate the existing management planning and control system. It is carried out to focus on possible area of improvements that can be affected to achieve the goals of better power reliability and more efficient services to consumers. The basic purpose is to evolve conceptual framework of divisions to become economically viable profit centers.

2.1 ORGANIZATIONAL STRUCTURE OF PRESENT SYSTEM

The organizational structure of the present system includes number of levels and the span of control over managers and supervisors that designate formal reporting relationships. There arises a need to study the organizational structure of company, because it exerts influence on the design of the management control system.[2] In Gujarat, the organizational structure of power distribution companies is of divisional type as shown in the FIGURE 2.1.

FIGURE 2 - 1 : ORGANIZATION STRUCTURE OF DISCOM OF GUJARAT

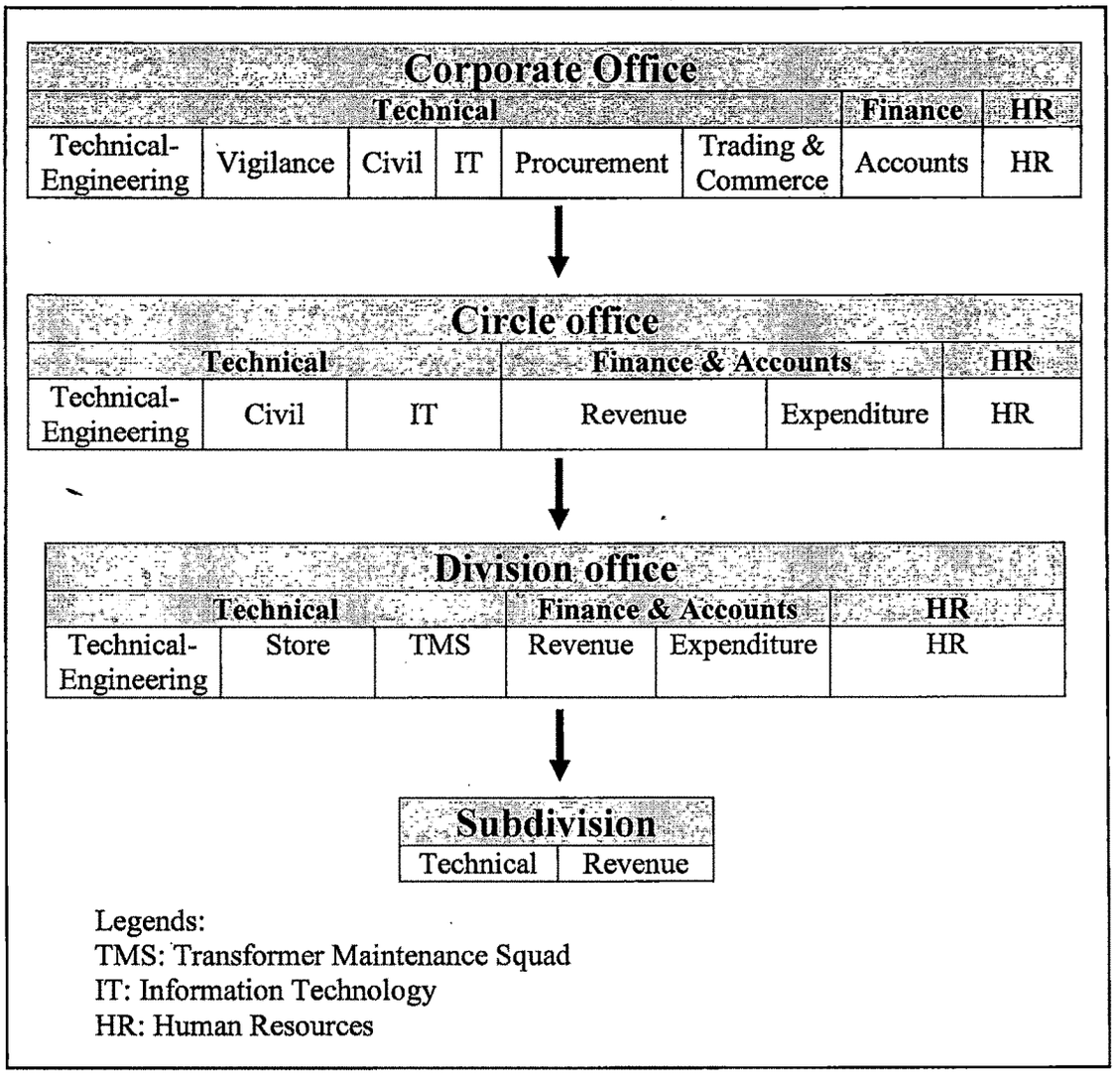


The corporate head office stays at the apex of the structure. It is subordinated with different circle offices located at various district places in Gujarat for the purpose of distributing electricity. Under circle offices, several divisional offices function as accounting units of electricity distribution business. Each division is further subdivided in different sub-divisional offices. These are operational units of an organization to provide services to end customers on 24 X 7 bases. The Chairman or Managing Director (MD) is the chief of the company. He/she is responsible for managing the entire distribution business of the company. He is also a member of the board of directors of the holding company named Gujarat Urja Vikas Nigam Limited (GUVNL). The chief engineer of the company is a senior most engineer working at the corporate office. He monitors day to day operational activities on the basis on strategic information reported to him/her from time to time. Circle offices located at different district places in Gujarat are headed by Superintending Engineers. There is a divisional office for each division and it is headed by an Executive Engineer. Further, divisions are divided into sub divisions and for each division there are sub divisional offices. Each subdivision office is headed by a Deputy Engineer. This office keeps direct contact with consumers and ensures to provide better services through uninterrupted power supply. The divisional organization structure is multilayered in which basic activity of power distribution business is undertaken only by subdivision offices. The other offices like division, circle and corporate offices function usually as monitoring units.

2.1.1 DEPARTMENTAL STRUCTURE

Each divisional office is normally divided in the departments. Generally, each office (except sub divisional office) mostly carries out four functional activities like (1) technical, which includes engineering technical, procurement, vigilance, civil and information technology (2) revenue includes billing and collection (3) expenditure and payment to suppliers, and (4) human resources (HR). A subdivisions office has generally two functional activities viz. (1) technical, and (2) revenue. The departmental structure of divisional offices, however, does not seem to include a unit like loss control cell to affect reduction in distribution loss. The FIGURE 2 - 2 shows the departmental structure of power distribution companies.

FIGURE 2 - 2 : DEPARTMENTAL STRUCTURE OF DISCOM IN GUJARAT



2.2 RESPONSIBILITY CENTER

A distribution company is a collection of responsibility centers[3]. *A responsibility center exists to accomplish one or more purposes, which are termed as its objectives. The company as a whole has goals, and senior management decides on a set of strategies to accomplish these goals.*[4] The objective of a company's responsibility center is to provide help and support system to implement different strategies determined by the company. Every organization is a summation of its responsibility centers. If each responsibility center fulfills its objectives in a responsible manner, the goals of the organization can be achieved with due respect.

The GUVNL has determined objectives for its subsidiary power distribution companies as:

Objectives of power distribution companies in Gujarat:

- To provide reliable and quality power supply to 10 million customers in Gujarat.
- To serve the commonest of customers up to grass root level in each and every village of Gujarat.
- To improve customer satisfaction by providing quality and effective services to end electricity users.
- To reduce distribution losses to comply with the global standards.

In Gujarat, there are two types of responsibility centers found in operation with power distribution companies in the state. They are revenue center and expense center.

2.2.1 REVENUE CENTER

In a revenue center, output is measured in monetary terms. The revenue collected from sale of energy by a divisional office of the power distribution company is duly recorded. But no formal attempts are made to relate input to output. Inputs for power distribution companies compose of the cost incurred on purchase of power, expenditures made on its employees, the cost of material consumed during the year, etc. Presently, the divisions of GUVNL and its subsidiary distribution companies operate as revenue centers to collect money. They do not have authority to determine the selling price. Likewise, they are not accounted for the cost of power that it consumes. An actual sale is measured in terms of units sold to consumers (sold out) with respect to unit delivered (sent out). The manager or the executive engineer is held accountable for the distribution loss in percentage only.

Division as Revenue Center

A division of GUVNL and its subsidiary distribution companies is being treated as revenue center. The Corporate Office determines monthly & yearly revenue targets for each circle and division on the basis of past month / year performance and in turn revenue of that much value has to be earned for each division. Presently, there is no such practice to relate the revenue collected by a division with cost incurred by the division. The primary measurement is that of revenue

collected by a division against units delivered and it is irrespective of cost incurred to realize it.

Thus, in the existing management control system, divisional office enjoys the status of just simple revenue center to carry out responsibility of better revenue collection. It is not viewed as capable of carrying out strategic objectives.

2.2.2 EXPENSE CENTER

Expense centers are responsibility centers for which inputs, or expenses are measured in monetary terms, but in which outputs are not measured in monetary terms.[5] There are generally two types of expense centers that operate engineered and discretionary. These labels relate to two types of cost. (i) The first type is engineered costs for which the "right" or "proper" amount can be estimated with reasonable reliability (ii) The second type is discretionary costs (also called managed costs). For these costs no such engineered estimate is feasible. In discretionary expense centers, the costs incurred depend on management's judgment about the appropriate amount required under the prevalent circumstances.

HT cell as Engineered Cost Center

There is HT cell unit of the Baroda city circle that operates under the MGVCL. Its functions include erecting Ring Main Units (RMU), locating fault in underground cable, HT checking and maintaining 11 kV switching sub stations. The cost for all these activities can be easily worked out like the cost for erection of RMU, that of HT checking of single consumer and also of fault finding per visit. In this respect, HT cell unit under the Baroda city circle becomes engineered cost center.

Vigilance cell as Discretionary Cost Center

The cost incurred for installation checking cannot be estimated for an individual division. It is based on management's decision to appropriate the cost per installation checking. In this regard, the vigilance cell at the corporate office is a discretionary cost centre.

In present management and control system, a circle office is an administrative unit. It is considered as an expense center. Similarly, the corporate office is characterized as an expense center having two separate subunits called engineered cost center and

discretionary cost center. Correspondingly to it, the IT Department, Commerce Section, Finance & Account and Technical unit too function as engineered cost centers. The legal and vigilance departments function as such as discretionary cost centers.

2.3 FUNCTIONS OF PRESENT SYSTEM

It is rather essential to understand as to how the optimal degree of control can be achieved in an organization. To supplement it, one needs to understand what is the control system, how key components of the control system function, what are its responsibilities, and how to design, manage and redesign organizational control systems[6]. In view of this, it is necessary to study functions of the existing system.

2.3.1 FUNCTIONS OF SUB DIVISIONAL OFFICE

Subdivisional offices are involved in the core activity of power distribution business. They keep direct interactions with consumers on day to day basis. Functional activities of these subdivisional offices are summarized as under[7]:

A. Technical

- Maintaining uninterrupted power supply to consumers in specified sub divisional area.
- Resolving power failure complaints & complaint management.
- Accounting of energy up to DTR level and reduction of T & D losses.
- Providing new connection and taking care of connection modification requests in existing connection.
- Repairing and maintenance of distribution infrastructure.
- System improvement and innovation schemes.
- Detection of energy thefts & billing thereof.
- Disconnection management.
- Meter and seal management.
- Material requisition, consumption and accounting.
- Generation of MIS including interruption reports at sub divisional level.
- Execution of projects and government schemes.

B. Revenue

- Meter reading, preparation of energy bills and collection of revenue
- Validation of consumer's bill and maintaining consumer ledger.
- Recovery of arrears and legal proceeding.
- Resolving complaints related to billing.

A Deputy Engineer (DE) is a head of a subdivisional office. He is responsible for overall operational activity. The DE is vested with powers to approve an amount up to ₹ 40,000 towards capital investment in system improvement or new innovative scheme (NIS) to strengthen the electrical network. He can also approve an amount of ₹ 2,00,000 to provide new connections to consumers as per the delegation of power (DOP). The revenue staff in a subdivisional office is responsible for day to day meter reading, billing and revenue collection and solving related issues & complaints.

2.3.2 FUNCTIONS OF DIVISIONAL OFFICE

A divisional office is put under the control of Executive Engineer (EE). Various sections function under his control. They include sub divisional offices. A divisional office is an accounting and legal unit for the GUVNL and its subsidiary distribution companies. Functional activities at divisional offices are mainly technical, revenue, expenditure and HR. It is involved chiefly in monitoring and controlling sub divisional offices. Along with it, this office is supposed to maintain accounts of the revenue generated from a sale of power. It also records the expenditure incurred by the division. These departments called the revenue section and the expenditure section to carry out these functions respectively. Various activities of a division office are summarized as under[8]:

A. Technical

- Daily monitoring of sub divisional activity.
- Approving of technical sanction for new connections and system improvement as per delegation of power.
- Divisional store involve in inventory management for all subdivisions.
- Managing HT consumers' profile and related activities.
- Meter testing and sealing.
- Transformer maintenance activity.

- Procurement of decentralized items and materials management.
- Preparation of installation checking program.
- Monitoring of new connections and connection modification activity.
- Monitoring of complaints.
- Monitoring of interruptions and MIS reports.

B. Revenue

- Accounting of revenue activity on daily basis.
- Monitoring collection of HT & LT Consumers.
- Adjustment of consumer account.
- Monitoring of disconnection activity.
- Collection of revenue for HT consumers.
- Monitoring and control on HT/LT consumer master.

C. Expenditure

- Pre audit of technical sanction.
- Pre audit of material requisition.
- Posting and accounting for Material Requisition (MR), Credit Requisition (CR) and Inter Branch Advice (IBA).
- Preparation of trial balance on yearly basis.
- Day to day cash management for claims and advances.
- Procurement of de-centralized material (Non-key material items) and payment of supplier vouchers.
- Placement of work orders for erection of poles, line & transformers and other maintenance related works.

D. Human Resource

- Payment of salary to employees of divisional and sub divisional employees.
- Employees' services like leaves to be granted, claims to be settled, etc.
- Advances / loan allowed and procedure adopt for it.
- Transfer of class-III & IV employees and disciplinary action.
- Imprest management.

A divisional office is located closer to subdivision offices. Hence, a divisional office gets a better understanding of day to day operational issues and about problems that

arise for a subdivisional office in their routine operations. It is, however, a fact that a divisional office carries limited authority to make decisions.

Under the present system, the accounting of expenditure is done at a divisional office with respect to costing of manpower, material and administrative & general expenses. But cost of power does not fall into their purview. This does not allow due evaluation of profitability incurred by each division and its detail is not readily available. In this way, the performance of a divisional office is monitored only in terms of collection of revenue. No attempt is made to relate operating cost with revenue. As a result, a manager of a division is not inclined for better tradeoff between cost outlay and revenue and also the competitive edge is missing among divisional offices operating in different areas of the state.

2.3.3 FUNCTIONS OF CIRCLE OFFICE

A circle office is headed by a Superintending Engineer. Various sections function under his control. The functions carried out by the sections include the chief functions like technical, revenue, expenditure and HR. These functions are elaborated below[9]:

A. Technical

- Administrative control over offices at all divisions & sub divisions.
- Giving technical sanction for new connections and also for system improvement or NIS. It is done with powers delegated to the office.
- Consolidation of MIS & T&D data & reports and its submission to the corporate office.
- Monitoring of operational performance to affect reduction of loss and improvement in distribution efficiency.
- Managing IT services up to sub divisional levels to build up effective connectivity among offices to ensure smooth flow of information for prompt communication.

B. Revenue

- Monitoring of revenue collected from a sale of electricity and other charges.
- Setting revenue targets for each division.
- Monitoring activities of disconnecting power supply of defaulters.
- Monitoring legal issues.

C. Expenditure

- Procurement of material and approving orders for works & vehicles.
- Pre audit of purchase / technical proceedings.
- Consolidation of trial balance.
- Internal audit management.
- Cash management.

D. Human Resources

- Salary to be disbursed to employees at circle offices.
- Promotion of class-III & IV employees working at different offices under circle.
- Disciplinary action to be initiated against class-II, III & IV employees.
- Recruitment of class-IV employees to recoup the staff following retirement, death, etc.
- Transfer of class-I, II, III & IV employees.

It appears that core functions and responsibilities of divisional and circle offices are overlapping and a circle office seems to function usually as controller of controller. Largely, a circle office works as authority of data consolidation, forwarding and controlling. The difference that is felt is in supervisory and executive nature of the functions.

2.3.4 FUNCTIONS OF CORPORATE OFFICE

The corporate office is the top management. It operates under the control of the operational chief for overall activity who is Chief Engineer. There are various sections that function under his control. They include circle offices too. Each unit is treated as service unit with a separate functional area to serve internal customers and authorities. Primarily, the functional areas of this office can be spelt out as under:

A. Technical

- Authorized to grant final approval to technical operations.
- Setting targets for technical operations.
- Framing technical aspects of business policy.
- Giving technical sanction to new connections and to system improvement.
- Managing technical issues with government officials and agencies.

B. Vigilance

- Preparing checking program of consumer premises to detect theft of energy.
- Conducting mass drive for checking installations and restricting theft of energy.
- Analyzing incidents and causes of power theft.

C. Procurement

- Planning to procure key material.
- Arranging for quality check & inspection of key materials to ensure quality standard of material.
- Material management.
- Managing procurement process to ensure timely supply of materials.
- Allocation of key material to different divisional offices.

D. Information Technology

- Providing IT infrastructure.
- Managing IT services including designing of software.

E. Commerce

- Analyzing energy demand.
- Forecasting energy requirement.
- Availability based tariff (ABT) & tariff related issues.

F. Legal Cell

- Managing legal issues of company to safe guard the company's interest in any kind of disputes that may arise with customers or any other agency.
- Generating statutory reports.
- Resolving consumers' grievance for justice.

G. Finance

- Full power for revenue and expenditure activity.
- Revenue management and setting of revenue collection targets.
- Planning a budget and its approval.
- Arrangement of internal / external audit
- Management of internal / external audit.
- Accounting of materials.
- Recording of expenditure in books of account.

- Management of cash for remittance and payment.

H. Human Resources

- Employee services like approving loans, settling claims, disbursing advances etc.
- Planning of HR policies and its implementation to ensure adequate manpower at different offices.
- Holding full powers for matters like transfer, promotion and recruitment of employees.
- Planning HR strategy and its implementation.
- Legal proceedings related to employees.
- Manpower planning for the company.
- Conducting welfare activity.
- Maintaining service book records.
- Arranging training to update the knowledge and skill base of existing employees.

The Managing Director (M.D.) of the company manages entire power distribution business of the company. He/she plays a vital role for strategic planning of the company and to affect improvement in the performance of entire company in different strategic areas.

The organization structure of the corporate office is functional type, whereas the subordinate structure is divisional type. Because of it, there arises conflict about roles and responsibility among the functional heads and their subordinate staff and also between divisional heads and their subordinate staff.

Conflict due to organization structure

Mr. Ramesh Arora (Junior Programmer) is working at a circle office. He looks after the IT functions at the circle level under supervision of Executive Engineer (IT). Under the present structure, the organizational authority is Mr. M. G. Patel, the Superintending Engineer who is the Chief of Circle Office whereas the functional authority lies with the Executive Engineer-IT who is the head of IT department at the corporate office. On 02/01/2009, when the Superintending Engineer, Mr. M. G. Patel, instructed this Junior Programmer to solve computer problems faced at the Kalol-Town

subdivision the junior programmer refused to obey him and carry out the work on priority basis. He said that the Executive Engineer (IT) of the corporate office had instructed him to first complete the DTR software installation at the Chhatral subdivision. Such conflicts may cause problem among officers and leading to delay of activities.

2.4 CRITICAL EVALUATION OF PRESENT SYSTEM

The present management control system and its problems are analyzed for improving the control system and its performance. The problems of the control system can be explained in the following way:

2.4.1 SLOW DECISION MAKING PROCESS

The present structure of the organization is that of a business unit type. The Business Unit (BU) is a sub division office and the Strategic Business Unit (SBU) is the corporate office at the top. Even if there is urgent need of decision on certain matter, it has to pass through various levels of hierarchy. As a result, while it is referred to a higher office it takes unusually longer time. When decision is delayed the required action too is delayed and the matter that needs immediate attention is left out for no reasons.

Slow Decision Making Process

In 2007 when system of monthly billing was started, the Indrapuri Subdivision was in need of allotting to it one additional bill collection center. The Deputy Engineer (DE) of the Indrapuri sub division conveyed the demand for the same to the divisional office on 8th Jan, 2007. The divisional office in turn reported it to the circle office on 17th Jan, 2007. The Circle office reported it further to the corporate office on 25th Jan, 2007. Finally the corporate office consulted the finance department on the matter and issued instructions to the IT department for installation of one cash collection center and it was on 5th Feb, 2007. At last, the cash counter was set up on 9th Feb, 2007. Because the decision process takes so long to obtain clearance at various levels the time duration from the point of demand to the final action of installation of software, etc. took about a month's time. This caused hassles to consumers for one more month.

2.4.2 CUSTOMER SATISFACTION

In any business, customer satisfaction is a key indicator of success. It has fallen to the attention that in the present management control system, appropriate importance is not paid to all class of customers. Industrial customers consume extensive energy and in turn they bring higher revenue realization to the company. For this reason, industrial customers would naturally expect priority over other consumers. But for quite sometimes, these prospective consumers seem to raise complaints regarding lack of commercial approach and poor and delayed services.

2.4.3 LACK OF CUSTOMER FOCUSED APPROACH

The Electricity Act 2003 intends to create competition in distribution business. But the regretting fact is that customer focused approach is missing at respective levels in GUVNL.

Lack of Customer Focused Approach

The Government of Gujarat has notified the Dahej Port as a Special Economic Zone (SEZ). The port falls under the Bharuch circle of DGVCL. Usually, industrial area is potentially high revenue generating zone for electricity supply. On 23th October 2007, the management of SEZ approached the divisional office for electrification and supply of power. Even if it is a profitable business for the power distribution company, suitable attention was not paid to grant technical sanction to the request of the SEZ authority on a priority basis. Their demand of getting the connection on early ground was not attended promptly. The authority sitting at the divisional and corporate offices took unusually longer time to approve the said proposal. The result was that the SEZ authority at last approached the Torrent Power, a private player, to meet their requirement of power. Finally, the Torrent Power grabbed the business by providing a new connection to the port within one month of time. In turn GUVNL/DGVCL lost this profitable business from SEZ.

This illustration shows that lack of right approach and prompt attention would result in losing the business and in the competitive market today there are private players keeping close eyes on such opportunities.

2.4.4 INADEQUATE ACCOUNTING

In the present system, subdivisional offices are made responsible for distribution of electricity, its billing and revenue collection activity. While a divisional office is just an accounting unit for the GUVNL and its subsidiary power distribution companies, necessary attention is not paid to reconcile profitability of a division on quarterly basis. In many divisions it is even found that a field asset register is not maintained properly for non-moving items. Along with it, the chief of division, i.e. the executive engineer is not in a position to ascertain whether his division runs in profit or in loss? He is not even aware how much profit or loss his division is making every year. Besides it, when the annual report is prepared at the corporate office it becomes very difficult for the management to know about which division put in good performance and which one remained below the mark in terms of financial performance. It would not recognize properly what is the profitability of a specific division?

2.4.5 COSTING SYSTEM

Under the prevailing control system, cost management activity is assigned to the finance department at the corporate office. A Divisional Office is responsible only for accounting expenditure incurred on various purposes. But there is no such practice followed to estimate a total cost of power. Further, at the corporate level, the costing activity is restricted chiefly to file a petition to the GERC to raise the per unit selling price of electricity and to meet the aggregate annual revenue requirement. The total cost of power is not determined for a division even if it is recognized as the prerequisite for better financial management.

2.4.6 NEED BASE POLICY V/S LONG TERM BUSINESS PLAN

It is noticed that practice of formulating long term business policy and strategy is seriously missing. Demand of electricity increases in particular area and then only decision is taken to erect a new 66 kV substation in view of the over loading at the existing 66 kV substation. With proactive action & long term business plan the company would get relief from a need based emergency situations. In the era of revolutionary changes that usher in the distribution business, it is most desirable that an organization prepares its long term business plan and prepares accordingly a strategy to stand in competition. It will affect improvement of business in future.

2.4.7 PERFORMANCE EVALUATION

Performance evaluation is usually carried out on the basis of Business Operations Parameters (BOP)[10]. For the present system it would be also insufficient to justify proper ranking of SBU. Hence, there is no motivation to achieve desired objectives of an organization. In most cases, therefore, personal goal and objectives play an important role. This condition brings into the system subjectivity in decision making and may not leave a chance for impartial decisions. Performance evaluation, on the other hand, brings transparency in the decision making and raises the level of performance to the benchmark level.

2.4.8 DATA INTEGRITY

It is found that required data is obtained from a person who is being evaluated. Hence, for fear of poor performance one may do compromise in the data. It will result in data manipulation by which rosy picture of better performance is projected. In this way, dishonesty within or otherwise may put the integrity of data to serious questions.

Integrity of data in T&D Loss

For the Mandvi subdivision, the target was specified to reduce T&D loss of the Vrundavan feeder up to 20%. It was incurring heavy T & D loss of 32% in the year 2007-08. Instead of reducing losses of the Vrundavan feeder, the sub divisional engineer preferred in the event of some technical faults on the Vrundavan feeder in the month of Jun-2008, to provide supply from the Champaner feeder that is located in a nearby area under his control. Its result was that the Champaner feeder that was incurring relatively T & D loss as lower as about 18% came out with a little increase in the T & D loss. It did not remain under focus. On the other hand, the Vrundavan feeder registered spurious reduction in the T & D loss as it was at the cost of the Champaner feeder.

Data Integrity in reliability index

To show an increase in power supply reliability; a sub divisional engineer may not report on partial emergency shutdown (ESD) or

tripping. The number of affected customer decreases and in turn achieve higher reliability index.

2.4.9 COMMON YARDSTICK

Further, no systematic mechanism prevails presently for performance evaluation on common and standardized yardstick. In its absence, proper decision cannot be taken to measure and compare performance of a particular division with that of other divisions. A common yardstick of performance evaluation is missing.

Absence of common yardstick

In 2009-10, the Kalol-1 division met its revenue targets in term of achievement v/s target for revenue collection. But it was weak in power reliability and DTR failure rate. Further, the Bavla division was found weak in revenue collection but it did better to reduce T&D losses and power reliability. Thus, it would be difficult to judge the performance of each division in the absence of a common yardstick.

2.4.10 AD-HOCISM IN DECISION MAKING

In the present setup, operational activities are performed at the subdivisional level. There is no formal system to make other higher offices or department accountable to them. Further, there is no system to evaluate performance of various departments of a division or a circle and those at the corporate office. Even then decisions on too sensitive issues are taken at higher offices.

Ad hoc ism in decision making

In May-2006; Sub divisional engineers of the Rajkot city circle were directed to install Automatic Power Factor Controller (APFC) panels at various transformer locations and feeders. They were costing around ₹ 4 crores for single circle. The aim was to reduce the losses through reduction in reactive power. The project was implemented without any detailed study. The result was that no significant improvement was observed from the said project.

2.4.11 ALLOCATION OF CORPORATE SERVICES

Sometimes, corporate services are allocated inappropriately without any justified analysis. They are allotted as per the judgment of departmental head. In many cases, these decisions go subjective without any logical ground.

Improper allocation of corporate services

The vigilance department of the corporate office plan and perform mass installation checking drives in different divisional and subdivision areas. The purpose is to detect theft. Sometimes, they perform it in the divisional/subdivisional areas in which detection rate is reported to be low as also T&D losses are low. It is further observed that less attention is given to those divisions/subdivisions in which high T&D losses are reported and high headed consumers are in arrears. Thus, it has to be noted that corporate services are allocated without proper analysis.

2.4.12 ORGANIZATIONAL CULTURE

The present system seems to follow culture and style that sound sometimes like bureaucratic type. Hence, it is not possible to document each and every instruction and guideline with relevant details. It is usually observed that interpretation of the same matter differs from authority to authority in the same business situation. This may cause confusion on sensitive issues. Proper guideline and strategic map may serve as useful reference to affect uniform decision making.

2.4.13 BENCHMARKING & SCORECARD

Absence of benchmarking & score keeping is noticed in the present system. The result is that performance evaluation may differ from person to person[11]. For example, one officer may considers 15% arrears in rural division as higher and evaluate a division as poor performer, whereas another officer may evaluate the same division as a good performer on the same reading. To obviate discrimination in evaluation, there is dire need of organizationally accepted benchmark. A benchmark can be determined on the ground of goals and objectives and it can provide guideline to performance evaluation.

2.4.14 FEEDBACK MECHANISM

Present system does not keep systematic feedback mechanism. Control of various indicators is rather situational. As there is lack of structured feedback mechanism, matter is taken up only when situation becomes worst. It leads to emergency like that of fire fighting with all rushing and haste. It is to say that well defined feedback

mechanism rests on the principle of 'management by exception' and it is required to be adopted by business organization caring for better performance and better business.

2.4.15 POST EXECUTION REVIEW OF PROJECT

When any project is conceived operational payback period is considered a decisive factor for investment proposal. But it is observed that the present management follows no formal system for post execution review of project. Because of it, it is not possible to judge about relevance of project selection criteria. Further the management does not know about the outcome. Post execution review indicates that the management is interested to learn about the gain from the investment. If it is lacking the management does not get knowledge gained through execution of projects.

2.5 SWOT ANALYSIS OF PRESENT SYSTEM

SWOT analysis is an important tool for formulating the strategy. Present system is analyzed on the basis of SWOT analysis. The analysis involves evaluation of strengths, weaknesses, opportunities, and threats in view of present performance. It then draws conclusions about (1) how company's strategy can be matched with both its resource capabilities and its market opportunities, and (2) how urgent it is for the company to correct weaknesses noticed in particular resources and to guard against threats that particular external factors may cause.[12]

2.5.1 STRENGTHS

When analysis of internal capabilities was carried out the following strengths were revealed:

2.5.1.1 Technical knowhow and knowledge

Prior to enactment of the Electricity Act 2003, the Gujarat Electricity Board (GEB) happened to be a major player in the field of power generation, transmission and distribution in the state of Gujarat. The unbundling of the GEB resulted in emergence of four different distribution companies. As a result, power distribution knowhow is now the exclusive property of these distribution companies both in terms of creation of distribution network and managing consumers. With efforts on

the part of the employees and the government; the GUVNL has been capable of extending power supply to 55 million rural people in Gujarat[13]. As a result of efforts put in by engineers on tasks, it is the first time in the history of power distribution sector in the country that a revolutionary technology such as Specially Designed Transformer (SDT) was invented by that power distribution company, and it was registered as a patent of invention.[14] In addition, Gujarat is aiming to be a leader in rural electrification.[15] Recognizing such efforts, the MGVCL has been awarded a BRONZ shield, which is a prestigious National Award, by the Ministry of Power, Govt. of India, for "Meritorious Performance of Power Utilities for the Year 2008-09"[16]. Such a state of art of the knowledge base would be very encouraging for progress of the state.

2.5.1.2 Established Infrastructure

Distribution companies of the GUVNL serve both rural and urban areas. They setup electrification and supply power to different categories of customers. These companies have well established infrastructure to deliver electricity to each segment of society. The TABLE 2-1 details on the infrastructure that is operating at present.

TABLE 2 - 1 : INFRASTRUCTURE OF GUVNL AS ON MARCH 09

Sr. No	Voltage Level	Length of line (in cKm)	Sub stations (In numbers)
1	400 Kv	1922	9
2	220 kV	12020	67
3	132 kV	4553	48
4	66 kV	17834	806
5	11 kV	216214	-
6	LT Lines	256789	-
7	Distribution Transformers	-	331876

Source: Report on "Power sector scenario in Gujarat" by Mr. P. H. Rana, M.D., GSECL.

2.5.1.3 Proactive and dynamic practices

The GUVNL has initiated various steps to affect adaptation of best distribution practices like Geographical Information System (GIS), High Voltage Distribution System (HVDS), Supervisory Control and Data Acquisition System (SCADA). These steps are taken besides initiatives on enhanced customer satisfaction[17]. Such initiatives provide evidence of proactive and dynamic efforts on the part of GUVNL. They need to be carried further for enhanced performance and service to customers.

2.5.1.4 Good financial position

The financial health of distribution subsidiary is now improving to a significant level. It has earned cash profits of ₹ 4.72 billion[18] for financial year 2007-08 on revenue and subsidy realized basis. Furthermore, a huge investment is brought for development of distribution infrastructure and best practices are adopted with a view to improving the financial condition of the organization in future. Mr. Tadashi Kondo, the country director, India Resident Mission of the Asian Development Bank (ADB) once commented that "...Gujarat's power sector is the second best in the country and we understand that the state's utilities are making net profits..."[19]

2.5.1.5 Established responsibility

The responsibility at the subdivision level is well defined and established. Junior Engineers operating at a sub division is held accountable for designated activities. Likewise, a deputy engineer, being chief of sub division, is held accountable as unit manager and he is responsible for providing reliable supply and other services to end customers who fall under his sub division.

2.5.1.6 Ability to adopt change

When the Electricity Act 2003 was implemented various changes have taken place. These changes were implemented from strategic point of view. It can be said that organization has adopted and implemented such changes with great success and reached many mile stones[20]. The restructuring or unbundling of the GEB in to different companies and implementation of end to end solution are the examples of such change.

2.5.1.7 Application of IT projects

Today, information technology has vital role to play in the success of any organization. The GUVNL and its subsidiaries have adopted many IT projects to gain a competitive edge and it is evidenced by an enterprise-wide project, called "e-Urja". Further, to implement end-to-end IT solution powered by the Oracle E-business suite technical support has been sought from Tata Consultancy Services[21].

e-Urja – ERP – Enterprise Resource Planning

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e-Urja: It is a giant implementation of ERP solution with various modules of Oracle Apps that is adopted by the GUVNL and its subsidiary companies. It includes implementation of modules like

Purchase and Sourcing, Customer Relationship Management (CRM), Inventory, Enterprise Asset Management (EAM) and the Financial Applications like AP & AR, General Ledger, Treasury, Human Resource (HR) etc. It is the 3rd giant implementation of the Oracle ERP suit around the world.

Such an initiative in IT projects places the GUVNL on a line of modernization to keep a pace with global development.

2.5.1.8 Ability to deliver quality power

The GUVNL has implemented Accelerated Development and Reform Programme (APDRP) schemes. This programme envisages improvement in quality and reliability of power supply to end consumers. To this end, huge investments of ₹ 2253.40 million[22] has been planned to revamping and revitalize the power distribution system by replacing cables and conductors and with bifurcation of feeder, and erection of new substation. An investment is also towards IT implementation with SCADA project. This has invigorated the distribution system by which quality enhancement in the delivery of power can be ensured. Because of it, power availability of MGVCL has improved to almost 99.44%[23].

2.5.2 WEAKNESSES

No organization can be completely good or completely bad. It can be a blend of good and bad in varied proportion. The proportion of the either is the factor that goes towards the evaluation of its status and performance. The organization on the present study, the GUVNL is too is an entity of this kind. The study has purpose to recognize its strengths that can promise better future for it. It as well identifies weaknesses in its present state with a view of working on the possible improvements to ensure better performance for better future. The analysis of the internal factors conducted for the purpose reveals glaring weaknesses as detailed below:

2.5.2.1 Organizational culture

Before the unbundling of the GUVNL took place, the electricity utility was treated as public utility in the state. The aim was not to earn profit but to serve people. It has changed now in the present context. The process of change, however, becomes complicated with rigidity of attitude shown by some of its employees. Non professional approach of its employees on field and their rudeness in dealing with

customers may compel customers to switch over to its competitors in the field of power supply.

2.5.2.2 Unable to meet the customer demand

Today's customer is more and more active and sensitive to its own requirements. He is more aware of his rights than ever before. Expectations of customers toward quality of power and services are increasing day by day. Even after vigorous training is provided to employees on customer relationship and its management, no significant improvement has been noticed in the performance level to generate customer satisfaction to a level of adequacy. This has been a case with some divisions which is evidenced through a survey of consumer satisfaction in the area.

2.5.2.3 Unable to meet power demand

For any power distribution company, it is very difficult to meet the growing demand in the power distribution sector. Lack of adequate investment in power generation and huge aggregate technical and commercial losses are the main reasons to cause severe power shortage. According to the Central Electricity Authority (CEA), the country faced an estimated deficit of 12.6% in year 2009-10. It is the highest during the last decade. The figures on peak shortages ring loud alarms as peak shortages remained as high as 9.9% during 2009-10[24]. The Gujarat state, however, faced deficit of 16.2% and peak shortages of 26.7% in the year 2007-08 while in 2008-09 it had deficit of 9.8% and peak shortages of 24.3%[25]. Such deficit is in fact alarming in view of increasing rate of development and urbanization experienced by the state.

2.5.2.4 Liability of non productive staff

The power distribution companies of GUVNL are state wide electricity distribution company employing about 50 thousand people. It has been reported that there is a huge staff that is surplus in view of actual work load. The major weakness of distribution companies of the GUVNL is a huge cost of non-productive, inefficient, non-effective, unskilled staffs with low productivity. Such a condition actually blurts out competitive edge with non productive cost on its employees. Employment of man power has to go in balance with the work requirement and these remains absent in the present system.

2.5.2.5 Poor project management

The present management system seems to be lacking systematic and unified project implementation strategy. It is noticed that a project proposal is accepted in view of the core objectives. But it is reported many a times that due to improper implementation the project does not receive due attention and the core objective remains far from its realization. The end result too does not go in line with the original project proposal.

2.5.2.6 Over protective employees

Presently, the service conditions concerning the GUVNL employees are found to be much protective and rigid. They may lead to fearlessness among the employees. Reportedly by many employees indulge then in malpractices of various kinds. The quantum of punishment for it too is loose and ineffective that it exerts no fear among the employees.

2.5.2.7 Non performance based promotion

The GUVNL and its subsidiary companies not allow monetary motivation for better performance. Likewise, performance does not remain a criterion for promotion. This results in lack of motivation among the employees to work in the direction of achieving organizational goal. For them rather, personal goals or individual benefits play an important role to remain priority.

2.5.2.8 Losses above benchmarking level

Gujarat suffers high aggregate technical and commercial losses (AT & C). They rise up to 25% which is a matter of grave concern. The XIth Five Year Plan envisages reduction in distribution losses in the system to the benchmark level of 15%.[26] It intends for undertaking suitable system improvement schemes.[27] Until these losses are reduced to globally acceptable level, the company cannot become financially viable and sustain itself. To give a comparative view, losses of better performing state or power utility companies are mentioned in the TABLE 2.2.

A perusal of data would indicate that the state of Gujarat incurs higher T&D losses in comparison of Tata Power, Himachal Pradesh and Tamil Nadu. It remains higher than even the international benchmark level which is 9-10%.

TABLE 2 - 2 : T&D LOSSES OF STATES

State / Company	T & D loss
Andhra Pradesh	25.10
Bangalore	24.58
BEST	10.35
CESC	20.90
Goa	19.20
Gujarat	23.60
Himachal Pradesh	18.00
Meghalaya	20.00
Reliance Energy	12.60
Tamil Nadu	17.00
Tata Power – Mumbai	2.40
Torrent Power – SEC	12.20

Source: Report on "T & D in India" Published by Power Line Research, 2007.

Note: For the financial year 2009-10, T&D loss of Gujarat remained about 25.03%.

2.5.3 OPPORTUNITIES

Opportunities appear like flashes. They wait for none, company has to grab them and use them for benefit. In this, there counts how alert and vigilant one remains to look for opportunities. In case of GUVNL, while an external analysis of various factors of the organization was carried out the following opportunities are identified in the interest of better business prospects.

2.5.3.1 Increasing customers

The first among the opportunities is that there is tremendous increase of customers. In view of it, customers demand more attention. Further, the present market is buyer oriented in which a buyer enjoys power. Increase in buyer's power cause competition among business companies to grab greater share in the business.

Factors affecting buyer's power [28]are namely; numbers of buyers, switching cost, impact of cost of power on customers, total cost and volume of customers. Now a day power is an essential commodity for every one's life. It is an essential input for every industry. Furthermore, when the Indian economy is growing with fast growth rate; the number of consumers too increases for the GUVNL every year at the rate of 5%[29]. It also raises the total consumption of electricity to increase to 8%[30] annually. Such encouraging results would generate ample opportunities for business growth in power distribution in Gujarat.

2.5.3.2 Suppliers

Suppliers too count vital to any industry. Getting reliable suppliers is a big opportunities to ensure smooth operation. Factors affecting supplier's power are namely; number of suppliers, suppliers' ability to integrate forward and presence of substitute input[31]. In power distribution business suppliers may be categorized as (1) Suppliers of electricity (2) Suppliers of materials for distribution infrastructure and maintenance spares and (3) Suppliers of energy meters.

For supply of electricity, the Electricity Act 2003 keeps provision for open access in the power generation field. As a result, numerous private players are operating in the field of power generation in Gujarat. With a concept of long term tariff policy, the GUVNL attracts huge investment in power generation. The capacity may get doubled by end of the XI Plan[32]. Further, due to power trading mechanism; a distribution company can save higher cost of power and make good profit from it. It is again good that big suppliers show interest to supply electric materials and energy meters to the company. It is with cooperation of prospective suppliers that the organization enjoys good opportunity of growth.

2.5.3.3 Government attitude / Social environment

It was observed earlier that due to un-necessary political interference, the utility of electricity in the state resulted in poor performance. Moreover, theft of electricity was commonly reported and in rural area it was granted approval as inevitable evil to society. But now things are changed. A change is noticed in the attitude of the government. The investment in the power sector is viewed as a commercially viable business. The situation is changing fast and at the same time, the attitude of society towards theft of electricity is also changing. People now consider power theft as unethical practice. Such a positive attitude among people helps the company to curb and prevent power thefts. Further, the story of complete rural electrification in the state of Gujarat provides a remarkable learning opportunity to other states and nations. It is an interesting story of political will and the government's commitment to empower its own people[33]. The effective working of the company in this light can generate new opportunities to enjoy a competitive edge in the present market.

2.5.3.4 Monopolistic type business / Limited competition

Following the implementation of Electricity Act 2003, free market conditions were expected. But looking to the present status it is felt that it is a remote possibility in a

distribution segment. It requires adequate infrastructure and heavy investment. But since they are not available, it leaves a possibility of only a few players in the power distribution business in Gujarat. For example: NTPC is interested to enter in the power distribution business in state like Gujarat, but it seems difficult due to non-availability of required infrastructure[34].

2.5.3.5 Regional benefit

Distribution companies of GUVNL are providing services in the state of Gujarat. It has rich, literate and industrial customer base[35]. The people of Gujarat can appreciate quality of power and services offered to them. Ultimately, high business growth is possible in light of paying and purchase capacity of customer base in Gujarat. Gujarat is considered as one of the rich states in the country. Additionally, central and southern areas of Gujarat have strong industrial zone for chemical and pharmaceutical industries with strong industrial customers like ABB, Reliance, Siemens, L&T, Essar, Suzlon etc. This increases good business opportunities.

2.5.4 THREATS

Threats are the reality that every organization faces. Things do not go as expected and when things go otherwise organization may perceive them as threats to what they want to do and what they want to achieve. While external analysis of various factors of the organization was carried out threats have been identified as under:

2.5.4.1 Competitors / threats due to new entry

The biggest threat that any business would face would be from its competitors. Before introduction of the Electricity Act 2003, power distribution business remained pure monopoly with the government and they enjoyed the benefits in the business. But then open access was allowed under the provision of section 9(2) of the Electricity Act 2003. As a result, the power distribution business no more remains a monopolistic business. Recently two companies namely Torrent Power and NTPC have entered in the new power distribution area. The Torrent Power has acquired power distribution business at Kanpur and Agra[36], and the NTPC has entered the distribution business at Kochi[37]. Hence, with these new entries in the business, a factor of competition seems to have posed as threat for the government owned company. In surrounding area of Ahmedabad; one of the subsidiary companies of GUVNL called Uttar Gujarat Vij Company Limited (UGVCL) is

losing customers to the Torrent Power, a private electricity provider. The factors affecting adversely the business of a government is that private companies ensure to customers better availability of power and comparatively better services. It has been reported that potential industrial consumers under the Bavla division of the Sabarmati circle are now shifting their power supply connections to the Torrent Power.

2.5.4.2 Cross subsidization and Regulator

The government has setup regulatory authority under the Electricity Regulatory Commission Act, 1998. It conducts regulatory activities and fixes tariff for different categories of customers in power distribution business. A distribution company as such has no right to decide the selling price of electricity. In case of need of tariff rationalization it has to submit petition before commission. If the commission deems it fit, it may award tariff revision. The Gujarat Electricity Regulatory Commission (GERC) monitors the functioning of distribution companies in Gujarat and determines responsibility for them to provide reliable and quality power supply and services to end customers failing which the commission may impose penalties on a defaulting company. The GERC also guides the company to be cost effective and sets targets to affect reduction in tariffs, to allow cross-subsidization and also to bring down distribution losses for all distribution companies in Gujarat.[38] Under its guidance, the tariffs are determined and cross-subsidies are allowed.

2.5.4.3 Un metered agriculture consumer base

A major factor to cause poor financial and operational health of a government owned distribution company is a big segment of unmetered agricultural consumers. It is obliged to provide free electricity for agriculture use to farmers in villages. But it is vested that even today, it is not possible to arrive at exact figures of electricity consumption for agricultural use due to un-metered agricultural consumers. Consequently; in present business environment these consumers become liability over a power distribution company. As per the annual report of GUVNL for 2007-08; Gujarat has a total of 10 million consumers of which about 8% are agricultural consumers.[39] But as reported about 31% of energy is consumed by these agricultural consumers.[40] However, out of the total of 0.736 million agricultural consumers, only 8% are metered.

2.5.4.4 Limited manpower

Though distribution companies have improved their financial health considerably but resources such as skilled man power, skilled IT man power, IT infrastructure are still in scarce in comparison to private players in the sector. The working group on power for the XI Plan has came out with a detailed assessment that overall man per MW was 9.42 at the end of the IX Plan and it was 7 at the end of the X Plan. It is expected to go down to 5.82 at the end of the XI Plan.[41] A crisis of human resources, felt virtually at each level, has led to a serious dearth of trained expert personnel.[42] Such a crisis of completely unexpected kind seems to be emerging in the power sector. Its result would be that the knowledge base and the operational base would suffer breakdown and eventually the productivity would suffer serious decline.

2.5.4.5 Unaffordable rate of power

The cost of power increases day by day because of rise in the generation cost and power purchase cost. The generation cost increases due to limited available resources in the state of Gujarat. Additionally the factor like high T & D loss, high level of cross subsidization and tariff rationalization at higher rate in turn lead to unaffordable cost of power for some class of people. Unit rates of power as applicable in same of the states are detailed in the TABLE 2-3 below:

TABLE 2 - 3 : TARIFF IN STATES

(Avg. price in ₹ per unit)

Tariff	Domestic	Commercial	LT Industrial	HT Industrial
Andhra Pradesh	3.84	5.47	3.85	3.71
Maharashtra	3.50	3.70	2.70	2.85
Uttar Pradesh	2.45	4.00	3.87	3.40
Goa	2.50	3.50	3.00	NA
Karnataka	1.85	4.50	3.10	3.60
Gujarat	3.45	4.52	4.48	4.18

Source: T & D in India Published and Distributed by Power Line Research 2007

An analysis of the data contained in the above table reveals that industrial consumers in Gujarat are paying higher tariffs in comparison to those in other states. Because of it, distribution companies of the Government of Gujarat are losing industrial consumers. In February 2010, Mr. Shaktisinh Gohil, Leader of Opposition, pointed out in the Gujarat Assembly that "In Gujarat, the cost of electricity for industry is ₹ 5.75 per unit, which is extremely high..." He added that "...The cost of power for industrial units in Gujarat amounts to almost double than that in the Himachal

Pradesh and Uttarakhand." This is the reason various small and medium scale industries have shifted their manufacturing units from Gujarat to Maharastra or Himachal Pradesh. Besides it, as Akshay S. Sheth, Regional Director, Associated Chambers of Commerce and Industry of India points out, "The duty that is levied on electricity in the state (Gujarat) is quite high"[43], it complicates the issue further.

2.5.4.6 Cross subsidization

It has been noticed while comparison the rates of power supply for different segments of consumers that Residential (RL) and Agriculture (AG) consumers is less in comparison to that charged from industrial consumers. This happens due to cross-subsidization. The level of cross-subsidization is a function of the cost of power and the amount of agricultural demand. However, the level of cross-subsidization is also influenced with the tariff orders. Gujarat has reportedly a high level of cross subsidization. It is almost about 145%. [44] Because of this, sometimes power distribution companies in Gujarat are losing ground against even upcoming industries in the state. In turn, it translates into loss of business.

2.6 PROPOSED BUSINESS PROCESS REENGINEERING

The design of the system should ensure effective communication, coordination, and integration of efforts across departments for efficient management control system.[45] In line with it, modifications desired in the existing organizational structure are thought out to create dynamism of an individual SBU. They are needed for improving overall health of power distribution companies. Hence, the chapter now focuses on these modifications.

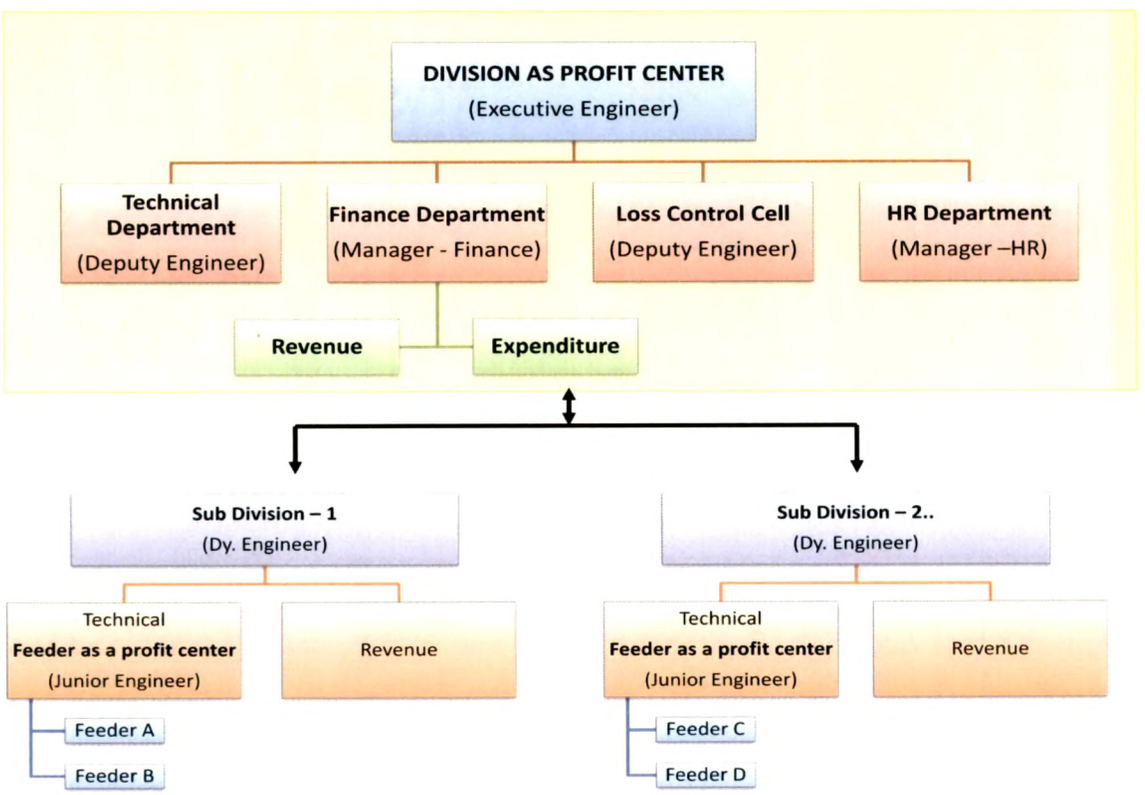
2.6.1 DIVISIONAL STRUCTURE

Power distribution companies operate through divisions in different parts of the state. Each division of power distribution companies is a critical strategic business unit and it is accountable for performance.[46] Each division of power distribution company has to function effectively as an independent profit center.[47] Each division should have individual profit & loss account.[48] A division is headed by an executive engineer. Under each division, there are sub divisions operating. Each sub-division is headed by a deputy engineer.

In each division, there should mainly four functional departments, namely (1) Technical department headed by Deputy Engineer. (2) Finance department headed by Manager-Finance (3) HR department headed by Manager –HR. (4) Independent Loss Control Cell (LCC) headed by Deputy Engineer.

In the analysis of the structure, one may think that each sub division and each feeder can be a profit center and it is headed by a deputy engineer and a junior engineer respectively. However, overall financial and accounting responsibility is placed with a division. The concept of profit center can bring a division a stronger position with extended administrative and financial power. In this way, the management may set criteria for a post of superintending engineer at divisional level and it may go with both revenue and investment functions. The FIGURE 2.3 displays the business structure of a division to serve as a profit center.

FIGURE 2 - 3 : PROPOSED BUSINESS STRUCTURE OF DIVISION



2.6.1.1 LOSS CONTROL CELL

Secondly, there can be a loss control cell (LCC) established in each division of power distribution companies. The cell may be headed by a deputy engineer if AT & C losses are above 30% and if losses remain between 15% and 30% the cell is put

under a junior engineer. Reasons for energy loss & modus of operation for pilferage of energy may differ depending on geographical condition under which a division operates. Since a division is located much closer to a subdivision office and such machinery may be setup at divisional level.

The head of the LCC may carry out responsibility of analyzing losses and designing a strategy to prevent loss of energy. He has to implement this strategy effectively to get desired results in terms of decreasing AT & C losses. The workforce required at the LCC may be arranged by affecting new arrangement among the existing staff of a division. If needed additional staff may be arranged with redeployment of staff of the circle office. The LCC is supposed to do quantitative and qualitative analysis of data and generate Business Operations Measuring Parameters (BPP) and Business Performance Measuring Parameters (BPP)[49]. Strategy map for data analysis and generation of BOP and BPP for a division are detailed out to implement in following manner:

1. Special reports

Special reports like various analysis reports of consumers are prepared by keeping an area or feeder under observation. They project comparison of consumption on the following lines:

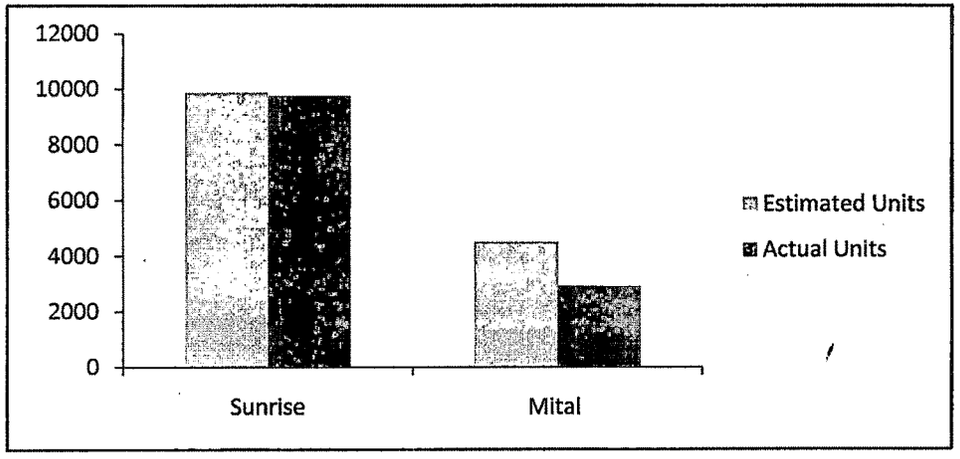
- Comparing consumption of electricity with seasonal comparison; for example consumption during this summer is compared with that during last summer or this last winter.
- Comparison of consumption with similarly placed consumers in terms of area and contracted load in HP/kW etc.
- Comparing average consumption with contracted load: Load factor (LF) analysis like LF > 70%.
- No variation in consumption pattern (not even seasonal variation): Standard deviation is less than 1%.
- Downward trend in consumption as compared to average of last 6 to 12 months.
- "Theft" consumers under surveillance.

2. Consumption table & chart

The important point is to perform the periodic site survey of high valued consumers for the recommended period of six months. The format for collection of data and estimation of energy consumption is given in the TABLE 2-4.

TABLE 2-4: CONSUMPTION CHART

Name of Consumer and Address	Consumer Number	Contracted Load (In HP)	Nature and process of industry	Type of major Machines	Rated load of each M/C	Working shifts on each M/C	Consumption				Remarks
							Estimated Daily (In units)	Estimated Monthly (In Units)	Actual (In units)	Variation (In %)	
1	2	3	4	5	6	7	8	9	10	=(10-9)/8	
M/S. Sunrise Plastics, D2, Ganesh Corporation	1667780125	60	Plastic molding	Injection type Molding M/C	25KW	Two	300 Unit	9870	9750	-1.22	OK
				Plastic Reprocessing M/C	20KW	Two	256 Unit				
M/S Mital Metal, B67, Narayan Estate	1667890001	55	Eng	Drawing M/C	20HP	One	83 Unit	4500	2900	-35.56	To be Checked
				Rolling M/C	25HP	One	97 Unit				



Since it is based on data collection, suitable computer program may be prepared to estimate consumption of an individual consumer.

When this system is adopted it is not necessary to do installation checking on random basis. Instead of it, checking should be performed on doubtful or time bound consumers based on a field survey. Besides, it should be possible to generate a graph of consumption pattern for a specified period. It is again helpful to prepare a list of doubtful consumers. Thus, consumption table and chart would project clear picture of electricity consumption and help to plan proper installation checking.

3. Customized monitoring and reports

Besides it, some other kinds of reports are generated based on combination of various parameters. It is to monitor specific group of consumers as listed below:

- Area or village wise consumers and feeder wise or transformer wise consumers.
- Tariff, category wise and contracted load wise consumers.
- Consumers having single phase or three phases or static energy meter.
- Consumers having non-quality meter or electromechanical meter.
- Meter reader wise, book wise and cycle wise consumers.

4. Abnormality reports

- Lock status in last bill or in last three bills
- Zero consumption in last bill or in last three bills
- Faulty meter in last bill or in last three bills.

5. Revenue reports

- Age wise arrears.
- Action taken on disconnected consumers including civil suits.
- Arrears going to time barred in next 2 to 3 months.
- DC carried out and pending out of total DC order.
- Consumers under disconnection in "Theft prone" area; the consumer may be doing theft during odd hours.
- Consumer liable for disconnection with the combination of area/village, feeder, transformer, route code, amount, category on daily basis.
- Abstract summary of disconnection report on daily basis. .

6. Meter performance reports

- Meter reader & meter performance

Special field may be provided in the billing or in spot billing machine, where a meter reader can put his remarks. It can be helpful to detect irregularity / theft in the present connections. It is not only beneficial for effective installation checking but also provides motivation to meter readers for detecting thefts. Besides it, Meter make field may be available in billing database to mention make of a meter. It will make it possible to define performance of meter on the basis of its manufacturer.

- Billing efficiency and bill collection efficiency.

7. Summary reports

The proposed system should prepare strategic summary reports on different aspects. It helps in decision making to the top management. The reports are like...

- Per consumer per feeder unit sold out.
- Per consumer per feeder amount billed.
- Per consumer per feeder amount realized.
- Per consumer amount loss.
- Per consumer unit loss.

COST BENEFIT ANALYSIS OF LCC:

The LCC has to perform all the above analysis periodically to reduce T & D losses of a division. In turn, the company would be benefitted. As per the analysis from reports of the GUVNL and its subsidiary distribution companies, reduction of 1% of the T & D loss was affected in a financial year is equivalent to the effective saving of ₹ 120 crores. However, the fact remains that introduction of Loss Control Cells in all the 85 divisions of the distribution companies in Gujarat is going to cost about ₹ 7 crores in a year. Thus, with the implementation of LCC in all divisions if losses reduce by even 0.1% than also the proposed investment is commercially viable (as per cost benefit analysis) [50].

2.6.2 TREATMENT TO CIRCLE OFFICE

Operational restructuring is an important managerial initiative to strengthen the present control system with changes in the organizational structure.[51] Presently, the function of a circle office is to coordinate between the corporate office and divisional offices. However, once the concept of a division as a profit center is implemented it enhances the power of division offices. At the same time, the

performance evaluation will become easier. The task of complying information shall be carried out by a structured Enterprise Resource Planning (ERP) package which is named "e-Urja" project. Thus, the role of a circle office becomes limited. Hence, there is a need of organizational restructuring. It can be done on one of the two options that may be explained as under:

Option 1

The first option is to convert a circle office into a regional corporate office. It may be headed by a superintending engineer with existing staff setup in technical, expenditure, revenue and HR. A regional corporate office may be treated as a cost center and it has to perform various functions like (1) to prepare business plan for each division (2) to implement business strategy to achieve effectively the management objectives (3) to guide each division for reducing the loss or making the profit.

Option 2

When a divisional office is restructured as a profit center, the role of the circle office gets limited. The management may consider even to eliminate circle offices. Nevertheless, at the same time, a separate cell called Business Planning and Budgetary Control (BPC) cell may be setup at the corporate office to replace a circle office. The present staff set up of a circle office may be shifted to the LCC at a divisional office as well as the BPC at the corporate office. The functions of the BPC may include matter like (1) to prepare business plan for each division (2) to implement business strategy to achieve strategic goal of the organization (3) to guide each division to reduce loss or raise profit. The responsibility of the BPC may be to monitor, analyze and evaluate performance of a division. The success of the BPC depends on its cooperation and coordination with all divisions that are involved in its operation.[52] As discussed earlier, the major functions of a circle office are:

- Technical scrutiny of various technical projects and approval of technical sanction as per Delegation of Power (D.O.P).
- Consolidation of Management Information System (MIS) and AT&C loss report.
- Reporting, reviewing, and monitoring performance on the basis of various performance parameters like revenue, reduction in T&D loss, arrears position etc.

- Local purchase related activities and scrutiny of work order proposal and awarding work order.
- HR activities: They include maintaining seniority and managing promotion of class III and class IV employees at different circles & HR related activity.

As far as technical scrutiny is concerned, a divisional office should be assigned powers to approve the technical sanction up to the power of circle office. It goes with responsibility of achieving desired result by it. Communication between a divisional office and the corporate office can be IT enabled. Hence, the system would not entail any separate entity like a circle office.

Furthermore, the purpose for implementation of a concept of a profit center is to increase responsibility and sense of accountability among the staff. In spite of day to day intervention, the BPC at the corporate office may be entrusted with responsibility of analysis and generation of information for better management control and planning. Monitoring of revenue and expenditure may be entrusted to a divisional office and its performance may be reviewed by the corporate office on a fortnight basis. Consequently, assistant secretary and other staff at a circle office may be shifted to the BPC.

2.6.3 CORPORATE OFFICE STRUCTURE

Another salient feature of this framework is to treat individual department as a responsibility center. Departments like finance, commerce, IT, technical, vigilance, purchase, legal cell and business planning and budgetary control cell (BPC) may be made accountable to the managing director or the chief engineer. The Business structure is shown in FIGURE 2-4.

2.6.3.1 BUSINESS PLANNING AND CONTROL CELL

As indicated earlier, no formal system exists in the present setup for preparation of long-term business plan. For long-term survival and organic growth, company should spell out clearly its road map in terms of strategic planning. The style of management also has important role in strategic planning. Subsequent to it, in order to create a competitive edge and to meet competition in future, the company should have separate business planning and budgetary control cell. The major objectives of creating the BPC are performance evaluation, planning, defining responsibilities, coordinating, communicating, motivation and cost control.[53]

FIGURE 2 - 4 : PROPOSED BUSINESS STRUCTURE OF CORPORATE OFFICE

The employees working at circle offices may be redeployed in this cell according to their skills and the requirement. Moreover, in order to avoid paying any extra remuneration to have better co-ordination among various functional departments, one committee may be formulated at the BPC in which the officials may be incorporated as members in the committee. The Managing director would be the chair person and the chief engineer, the general manager-finance, the dy. general manager, the company secretary and addl. chief engineer shall be the members of committee.

Role and responsibility of BPC

The BPC cell is supported to deal exclusively deal with strategic planning, budgetary control and management control issues. It is necessary, because if budgetary & management control are put as routine functions of the finance and administration department, the crucial function will lose its priority in the scheme of things. A separate cell can devote exclusive attention to crucial matters. Moreover, as a team spends more time on these functions, it will develop intimate knowledge of functioning and performance at different responsibility centers. The role of the BPC is to prepare long-term business plans & detailed budgetary plan for each division and to implement the strategy in consultation with a division - profit center.

Generating MIS reports, monitoring of performance indicators, variance analysis, feedback management and performance evaluation of a division - profit center also falls under the responsibility of the BPC. Further, it is the responsibility of BPC to draw attention of the top management when variation in performance is noticed. The BPC can become a neurons system for the organization that constantly monitors its external environment and accordingly provides suggestions to the committee to change strategic planning accordingly. The BPC authority can have direct communication with each division so that accurate information will be reported to the top management for timely intervention if required[54].

2.6.4 DIVISION AS PROFIT CENTER

In a new organizational structure, a division is proposed to become a profit center based responsibility center. Profit center based responsibility center has an aim to measure both efficiency and effectiveness of the operational performance.[55]

"*Profit centers are responsibility centers whose financial performance is measured in terms of profit (i.e., by the difference between the revenues and expenses), the center is called a profit center*". [56]

Profit is a particularly useful performance measurement since it allows senior management to use one comprehensive indicator rather than several other indicators (Some of which may be pointing in different directions). The aim of the present study is to highlight the existing divisional office as a profit center based responsibility center whose performance is measured in terms of profit. It is one of the comprehensive indicators to improve health of power distribution companies. The advantages of this approach can include matters like that it creates competition in decentralized company. It provides goal congruence between a division and the company, and helps performance evaluation.[57]

2.6.5 ACCOUNTING OF PROFIT CENTER

A manager of this profit center may carry out responsibilities like making decisions that affect revenue and costs and thus resulting profit.[58] Accounting statements of each division should be prepared at a divisional level[59] by the finance department of at division. It may be recommended to appoint the manager finance as the controller of expenditure and revenue of a division. Preparation of P&L account of a division is detailed below:

2.6.5.1 INCOME

Meter reading, billing, assessment, and collection may continue to be carried out at sub divisional level. While a divisional office will scrutinize the bills and collect such revenue account to prepare P&L account. Income of a divisional office includes followings:

a) Revenue from sale of Power

It includes the following revenue under different heads and the revenue collection in P&L account is done on accrual basis

- Revenue from sale of power to domestic/residential consumers.
- Revenue from sale of power to commercial consumers.
- Revenue from sale of power to industrial consumers.
- Revenue from sale of power to public lighting connections.
- Revenue from sale of power to traction railways.
- Revenue from sale of power to agriculture consumers.
- Revenue from sale of power to public water works.

b) Electricity Duty & Tax on Sale of Electricity

It comprises total electricity duty and tax on sale of electricity recovered from consumers during the financial year.

c) Miscellaneous Revenue from consumers

It includes the followings under different heads:

- Meter/service line rental: Charges being collected from consumers for new connection toward service line agreement etc.
- Recoveries for theft of power/mal practice/non consumer assessment :
  As per Electricity Act 2003, theft /malpractice of energy are punishable acts and penalties are recoverable from defaulting customers at specified rates.
- Miscellaneous charges: It includes re-sealing charges, meter testing charges, charges for replacement of burnt meter and disconnection charges.

Less

d) Electricity Duty & Tax on Sale of Electricity

A power distribution company collects Electricity Duty (ED) and Tax on Sale of Electricity (TSE) from the consumers. It is on the basis of prevailing rates. The

amount is deposited to the Government account. Being an agency transaction, this amount should be deducted from the P&L account of a division.

Plus

e) Revenues from subsidies and grants

- **Agriculture subsidy**

  Power distribution company sells energy to agricultural consumers at the rates lower than the purchase price. The resulting shortfall of amount on such selling is reimbursed to distribution company in terms of government subsidies.

- **Govt. grants**

  This includes various grants given by the Government to power distribution companies to assist special class/region of people. For electrification in tribal area, Rajiv Gandhi Grameen Vidhutikaran Yojna has been launched for electrification of Below Poverty Line (BPL) class of households. In addition to it, the Ministry of Power has just launched Restructured Accelerated Power Development and Reform Program to affect reduction of AT&C losses in a town area.

f) Other income

- **Miscellaneous Receipts**

  Other income may include miscellaneous receipts of payment by the company as delayed payment charges (DPC) from consumers. This amount is interest levied on the dues recovered from the consumer on accrual basis.

2.6.5.2 EXPENDITURE

The present practice of accounting at a divisional level may be carried on. The expenditure and revenue section can be merged into finance and account department. The department will perform activities related to both income and expenditure. It is pertinent to note down that division should calculate the profit/loss and it must be accounted for both revenue and expenditure and its performance. The Manager (finance) should be made responsible for preparing the P&L account for every quarter. Besides, a head of a divisional office should be made responsible for performance of the entire division. Expenditures accounted for a divisional office are as listed below:

a) Cost of power

As far as cost of power is concerned, a holding company, namely GUVNL, deals in a business of purchase of power and its trading. The company decides and determines per unit cost of power for major distribution companies in Gujarat. The total cost of power is accounted for total units consumed in a division. The total sent out units to a division during one year is multiplied by an average cost per unit and it makes up the total cost of power. It composes a major cost for a division.

b) Repairs and maintenance expenses

A huge amount is required to be spent on repairs and maintenance activities. It contains the following expenses under different heads. They may be calculated at actual for a respective division during the financial year.

- Expenditure on repairs and maintenance of buildings
- Expenditure on repairs and maintenance of machineries
- Expenditure on repairs and maintenance for civil works
- Expenditure on repairs and maintenance of lines, cable network, Ring Main Unit (RMU) under New Innovative Scheme (NIS) etc.
- Repairs and Maintenance of vehicles
- Repairs and Maintenance of furniture & fixtures
- Repairs and Maintenance of office equipments
- Repairing charges of Transformers

This expense is essential to keep up the level of performance.

c) Employee cost

The cost includes following expenses under different heads for a division during financial year.

- Salaries paid to employees.
- Overtime payment for extra work.
- Dearness allowance & dearness pay as revised by the government from time to time.
- Other allowances as allowed under the provision of different acts.
- Bonus.
- Other claims like medical, leave travel assistance, earned leave encashment for retired employee, staff welfare benefits etc as admissible to each employee.

- Other payments like compensation on an employee's death and accident, workmen's compensation etc.

d) Administration expenses

It consists of different expenditures incurred in a division during the financial year.

- Rent including lease rentals
- Rates and taxes like service tax, etc.
- Penalties on statutory levies
- Insurance charges
- Testing charges: It includes testing charges payable for testing of measuring equipments to a third party or government approved testing laboratory on annual basis.
- Inspection & installation checking fees: Power distribution company has to pay inspection charge for inspection performed by electrical inspector as per electrical standards on overhead lines and electrical installation.
- Telephone, postage, courier and mobile charges.
- Legal charges paid to advocate on a panel for filing civil suits against the theft cases and deal in related matters of a division.
- Audit fees paid to auditors for external audit.
- Consultancy charges paid to consultants.
- Technical fees.
- Other professional fees and expenses.
- Conveyance & travel expenses on hiring of vehicle.

e) Other Administrative & General expenses

There are other expenses too that are required at divisional level for a respective financial year. They include:

- Printing & stationery
- Expenses on computer billing & charges paid to meter reading, billing agencies.
- Advertisements on power shut down notice etc (other than purchase related)
- Xerox copy charges
- Electricity charges
- Water charges
- Security expenses

- Meeting and entertainment expenses
- Miscellaneous expenses for administrative works

f) Freight & purchase related expenses

These expenses cover various purchase related expenses at divisional level, on actual basis for a respective financial year. They include:

- Freight, Octroi charges etc
- In case of local purchase items of items, purchase related expenses shall be based on a local purchase order, where as in case of centralized purchase items, it can be calculated on the basis of transfer pricing. This point is illustrated later in this chapter.
- Fabrication charges.

g) Other general expenses

Expenditure on training to staff: It can be calculated on the basis of the numbers of employee trained during the financial year. An average expenditure incurred to impart training per employee is available from Gujarat Energy Training and Research Institute (GETRI).

h) Depreciation charge on assets

Depreciation is calculated on the assets that the division own. These depreciation charges can be calculated on total assets of a division on basis of depreciated rate applicable item to item for the respective financial year.

- Depreciation on buildings
- Depreciation on other civil items
- Depreciation on machineries
- Depreciation on lines & cable networks
- Depreciation on furniture & fixtures
- Depreciation on office equipments

i) Interest and finance charges

It is very difficult to measure the effect of interest and financial charges up to divisional level; because it is the expenditure incurred at GUVNL or MGVCL corporate level on long term or short-term finance. However, these can be calculated in proportion to total charges paid by the GUVNL during the financial year.

- Interest on state government loan

- Interest on bank loans
- Interest on loans from government institutes like Power Finance Corporate (PFC) & Rural Electrification Company. (REC)
- Interest to consumers: It can be calculated on actual basis for interest paid to advance energy bill charges to consumers in a division.

Less

j) Expenses capitalized

- Repairs and maintenance capitalized
- Interest & other finance charges capitalized

k) Extra-ordinary items: losses due to flood, earth quake etc.

2.6.5.3 PROFIT BEFORE TAX (PBT)

PBT is an eminent parameter for measuring performance of a division. It can be derived by deducting the total expenditure from the total income. Corporate taxes like income tax, deferred tax, wealth tax, and fringe benefit tax can be calculated proportionately on PBT for a division.

2.6.6 EFFECT OF CROSS SUBSIDIES AND ITS TREATMENT

In Gujarat, Gujarat Electricity Regulatory Commission (GERC) fixes per unit selling price for different categories of consumers. The GERC awards the tariff structure with cross subsidization i.e. charging lower rates to some of segments of the customers, say residential and agriculture customers. Higher rate is charged to other segments like commercial and industrial consumers[60]. The level of cross-subsidization is function of the cost of power and the amount of agricultural demand. An average rate per unit of energy supplied to different classes of consumers for the financial year 2010-11 is detailed in TABLE 2.5.

TABLE 2 - 5 : ENERGY CHARGES FROM APRIL 2010

Class of Consumer	Average Energy Charges (in ₹/unit)
Domestic	3.60
Commercial	4.30
Industrial LT	4.00
Industrial HT	4.06
Agriculture (Excluding Govt. subsidy)	0.60

Source: Annual Performance Review for 2009-10 & Aggregate Revenue Requirement for 2010-11 for MGVCL and all other distribution companies under GUVNL.

Obliviously, the composition of consumers for each division is not the same. It means that profitability is mainly driven by composition of consumers in a particular division. Now, we may compare profitability of two divisions as shown in TABLE 2.6.

TABLE 2 - 6 : PROFITABILITY CALCULATION SHEET

(Amount in ₹)

P&L Account		Division 1	Division 2	TOTAL
Income				
RESIDENTIAL	Sold out unit	1123200	1122100	2245300
	% Revenue	60.9%	88.1%	72.0%
	Revenue	3335904	3332637	6668541
COMMERCIAL	Sold out unit	134600	101251	235851
	% Revenue	7.3%	7.9%	7.6%
	Revenue	608392	457654.52	1066046.52
INDUSTRIAL	Sold out unit	587900	50456	638356
	%Revenue	31.85%	3.96%	20.46%
	Revenue	2633792	226042.88	2859834.88
Total sold unit		**1845700**	**1273807**	**3119507**
Revenue from sale of power		6578088	4016334.4	10594422.4
Total income		**6578088**	**4016334.4**	**10594422.4**
Expenditure				
Total sent out unit		**2154600**	**1412500**	**3567100**
Cost of power @ 2.70 Rs per unit		**5817420**	**3813750**	**9631170**
Total expenditure		**5817420**	**3813750**	**9631170**
Profit/Loss		**760668**	**202584.4**	**963252.4**
%Profitability		**13.08**	**5.31**	**10.0**

Division	Category wise % revenue			Profitability
	RL	CL	IND	
Div.1	60.9	7.3	31.85	13.08%
Div.2	88.1	7.9	3.96	5.31%
Company	72.0	7.6	20.46	10.00%

If profitability is based on the revenue realized by a division, it would be misleading because it depends upon a composition of consumers in a division. In a profit center concept, one of the important parameters is profitability and it should be kept free from the effects of cross subsidization. The performance measurement of both the divisions should be carried out on common scale. Therefore, it is necessary to develop a MODEL to derive profit of a division. It has to be free from cross subsidization effect. It may be conceptualized through reversing the effect of cross subsidization. This means that deriving total revenue from sell of power the

calculation has to be done uniformly per unit selling price for all classes of consumers. To arrive at uniform rate, the concept of weighted average selling price (WASP) is evolved. The adjusted revenue for each division will provide a common base for comparing profit. Moreover, to derive WASP and subsequently revenue for each division the calculation method is formulated as follows:

Total revenue from sell of power : ₹ X

Total Unit sold : ₹ Y

Government subsidy for Ag. connection : ₹ Z

Total Revenue : ₹ (X+Z)

Weighted Average of sell Price : WASP=(X+Z)/Y ₹/Unit

Adjusted P&L account statement can be described as under

WASP= (Total revenue and from sell of power + Ag subsidy)/Total unit sold

= (10594422.4+0)/ 3119507 =₹3.39/Unit

Now, re-evaluation of the performance based on WASP model is given in TABLE 2.7.

TABLE 2 - 7 : PROFITABILITY CALCULATION FOR WASP MODEL

Particulars		Division 1	Division 2	Company
Income				
RESIDENTIAL	Sold unit	1123200	1122100	2245300
	% Revenue	60.9%	88.1%	72.0%
	Revenue @ WASP	3814387.2	3810651.6	7625038.8
COMMERCIAL	Sold unit	134600	101251	235851
	% Revenue	7.3%	7.9%	7.6%
	Revenue @ WASP	457101.6	343848.396	800949.996
INDUSTRIAL	Sold unit	587900	50456	638356
	%Revenue	31.85%	3.96%	20.46%
	Revenue @ WASP	1996508.4	171348.576	2167856.976
Total sold unit		**1845700**	**1273807**	**3119507**
Revenue from sale of power		6267997.2	4325848.572	10593845.77
Total income		**6267997.2**	**4325848.572**	**10593845.77**
Expenditure				
Total sent out unit		**2154600**	**1412500**	**3567100**
Cost of power @ 2.70 Rs per unit		**5817420**	**3813750**	**9631170**
Total expenditure		**5817420**	**3813750**	**9631170**
Profit/Loss @ WASP		**450577.2**	**512098.57**	**962675.77**
Profitability @ WASP		**7.75**	**13.43**	**10.00**

It is discovered from the above details that the application of WASP Model, the profitability of division 2 increased to 13.43%. Thus, it can be concluded that the performance of division 2 is superior to that division 1. From this model, it becomes clear that profitability of a division depends mostly on consumer composition under the division. To evaluate profitability and to compare it with that of each division on a common scale, it is essential to use WASP model to remove effect of cross subsidization in profit center concept.

2.7 TRANSFER PRICING

Often goods and services are transferred to another division. In such cases, there is a need to set the price for the goods or services that area sold or transferred. The price charged for interdivisional sale/transfer is called transfer price.[61] In the GUVNL and its subsidiary distribution companies, materials are procured at two levels (1) corporate level and (2) circle or divisional level. Basic classification for procurement of item is as below:

- Centralized material (key) items :

  Certain items have top most quality and they also required standardization across the company. In addition to it, it has higher unit cost. These items are classified as centralized items. They are procured at the corporate level only. Some of these items are listed below:

  1. Meter – high quality and standard material is required.
  2. Transformer & conductor – high unit cost.
  3. Seal – Standardization and quality is mandatory.

- Decentralized material (non-key) items :

  A few items are fast moving items. They have a lower unit cost. It is used on day to day basis at a field level. The requirement of these materials is of emergency nature which should be met with on urgent basis. These items are termed as decentralized items as they can be procured at a divisional or a circle level. Examples are as listed below:

  1. Cable box, Cable joint – Urgency is prime concern
  2. Kit kat fuse – Fast moving, less unit cost

Key materials are usually purchased at corporate level considering it as a centralized item. The purpose is to maintain appropriate quality and standard within the

company. Non-key items are procured at divisional level. The point is to keep lower inventories and to avoid long procurement process at the corporate level.

Any material purchased at the corporate level is transferred on demand to a divisional office for consumption. Presently, the transfer price is considered on cost basis i.e., purchased item is transferred to respective division on net cost basis. If any material is transferred from one divisional store to another divisional store, then average cost of the material lying at the source store is considered on First In First Out (FIFO) method[62].

One of the primary problems felt in the existing system is to devise a satisfactory method of accounting for the transfer prices of goods and services from one profit center to another. The reason is that it is an important part of the profit center measurement and, in turn of the performance of a division.[63] For the purpose, two approaches are proposed (1) Available market price and (2) Cost based transfer price. By these approaches justified transfer price may be arrived at for transactions between profit centers.

2.7.1 COST BASED TRANSFER PRICES

If competitive prices are not available then transfer prices may become the basis of cost plus profit.[64] Even though transfer prices are complex to calculate and the results may be less satisfactory. It is suggested to apply profit markup method [65]for transfer of stock from one division to another division for locally purchased items. The price can be fixed by a purchaser with an addition of profit margin, because of manpower resources is used for procurement of such items. However, the simplest base for profit mark up is in terms of percent of costs. It is a way that has profit allowance. It may be added to the cost of material. This profit allowance can be earned if a division operates as an independent utility.

2.7.2 COST ALLOCATION OF CORPORATE SERVICES:

Some of the key services are rendered by the corporate office. They are termed as central services. These services are classified in the following three categories:

1. Central services over which a division has no control. For example: Using corporate level IT services at divisional level.

2. Central services that a division must accept, but for it the amount of the service is at least partially controllable. Example: Consumption of centralized key items at divisional level.
3. Central services over which a division has discretion to use. Example: Technical, accounting service of corporate level has discretion of use.

2.7.2.1 COST OF UNUSED SERVICES

Central services may include some services which division has no control. It calls for implied cost for the purpose. Such central service over which a divisional office has no control is as follows:

1. If divisional managers pay for any service which, whether they may use it or not, but they are more likely to use it. Such costs are implied costs allocated to unused services.
2. Divisional mangers are more likely to exert pressure to keep down these costs if it is compulsory to pay.

2.7.2.2 CONTROLLABLE SERVICES

Sometimes divisions have to accept certain central services, but the amount of the service that they receive can be controllable. The services of the vigilance department may be one example. There are three schools of thought about such services. The first school holds that a division should pay the variable cost of the services. If it pays less than this, it should be motivated to use more of the service, which is economically justified. The second school advocates for a price equal to the variable cost plus a fair share of the fixed costs. The third school of thought is of the opinion that a price that to be paid should be equivalent to the market price, or it should be full cost plus a profit margin. A divisional office has to decide about controllable services and on what ground the cost may be paid.

2.7.2.3 DISCRETIONARY USE OF SERVICES

In some cases, management may decide that the use of a central service is optional to a division operating under it. A division is allowed to use an outside service or develop internal capabilities for it or simply it may not use the services at all. The scope of these services shall be contracted or they might even be eliminated. For appropriation of cost of corporate services, different approaches can be conceptualized. But in present business situation, the distribution company should

do allocation of corporate services in proportion to the revenue raised by the divisions. Higher revenue assessment would certainly needs additional concentration & efforts by the management and hence greater expense allocation of corporate services is justified.

2.8 REPORTS AND REPORTING MECHANISM

Management Information System (MIS) is setup to prepare reports on monthly basis. These reports are meant to review activities that are performed at different level in the company. Similarly, other special reports are also prepared at regular intervals like daily, weekly, monthly & quarterly. These periodical reports are analyzed at different levels. These reports are of the following kind:

A. Daily reports

Daily reports detail on activities which comprise revenue collection, arrears recovered, number of connections disconnected, total interruptions and maintenance activities carried out during a day and the like. These reports are seat from subdivision to the corporate office and they pass through division & circle offices on daily basis.

B. Monthly reports

A monthly report is generated at each subdivision office and forwarded to next higher office. It consist operational information. Management Information System (MIS) reports include interruptions, meter replacement, MMB & sealing and progress of different schemes, etc.

C. Yearly reports

Yearly reports are related mainly to financial matters. They are generated at the corporate office on the basis of the information provided by circle or divisional offices. These reports are used for decision making. They are of great value for the top management. Yearly report on the profit and loss account is not prepared at the divisional level. So financial evaluation of a division is not carried in terms of profitability, cost to serve etc. AT&C loss, T&D loss, collection efficiency, total revenue collection, material account, expenditure on different schemes, these heads are of prime important in yearly reports.

2.8.1 REPORTING MECHANISM

In addition to determining the frequency of the report, progress reports of an individual activity are specifically useful to measure Business Performance Parameters. Summary is often made when specified milestones are reached. Thus, system usually contains a method to aggregate reports on individual progress at the corporate level. This provides an overall measure of accomplishment. The present system keeps reporting mechanism as detailed in the TABLE 2.8 below:

TABLE 2 - 8 : REPORTING MECHANISM IN PRESENT SYSTEM

Particulars	Frequency	Subdivision	Division	Circle	Corporate
Daily activity report	Daily	Source	Summation, Monitoring & Action	Consolidation	Summarize & Monitoring
Assessment & Collection	Daily	Source	Consolidation & Monitoring	Consolidation Monitoring	Summarize & Monitoring
Management Information System	Monthly	Source	Consolidation	Consolidation	Summarize & Monitoring
Interruption report	Daily & Monthly	Source	Consolidation	Consolidation	Monitoring
Progress of various schemes	Monthly	Source	Consolidation & Monitoring	Consolidation Monitoring Control Action	Summarize & Monitoring
T & D loss	Monthly	Source	Consolidation & Monitoring	Consolidation Monitoring Control Action	Summarize & Monitoring
Collection efficiency	Monthly	Source	Consolidation & Monitoring	Consolidation Monitoring Control Action	Summarize & Monitoring
AT & C loss	Monthly	Source	Consolidation & Monitoring	Consolidation Monitoring Control Action	Summarize & Monitoring
Installation Checking	Monthly	Source	Monitoring	Monitoring	Summarize & Control
Disconnection	Monthly	Source	Monitoring, Control & Action	Monitoring, Control & Action	Summarize & Monitoring
Vacancy statement & HR activity	Monthly	NA	Source	Consolidation & Monitoring	Summarize & Control action

Inventory Position	Monthly	NA	Source	Consolidation & Monitoring	Summarize & Control action
Material credit and debit report	Monthly	NA	Source	Consolidation	Summarize & Monitoring
Consumer General Ledger (CGL)	Monthly	Source	Accounting Posting Adjustment	Consolidation, Monitoring & Control Action	Summarize & Monitoring
Annual Administrative Report	Yearly	NA	Source	Consolidation & Control Action	Summarize & Action Plan
Trial Balance	Yearly	NA	Data Submission	NA	Preparation & Control
Profit and Loss Account	Yearly	NA	Data Submission	NA	Preparation & Control
Balance Sheet	Yearly	NA	Data Submission	NA	Preparation & Control

Source: Reports of GUVNL & its subsidiary distribution companies. NA : Not applicable

The table shows that the reporting network is elaborately worked out for such a huge organization. However, in the present era of technology, it is essential to reengineer the reporting mechanism. Strategic and tactical information can be generated from base line where as information with a single source of information may be accumulated at sub divisional level. This can be done through effective reporting network. Thus, the information system usually takes care of summing up reports at different level and preparing requisite output for use at the corporate level. The proposed reporting mechanism is shown in the TABLE 2-9.

TABLE 2 - 9 : PROPOSED REPORTING MECHANISM IN TECHNOLOGY ERA

Particulars	Frequency	Subdivision (IT System)	Division	BPC / Circle / Corporate
Daily activity report	Daily	Source (DAR online)	Action plan	Monitoring
Assessment & Collection	Daily	Source (LT billing online)	Monitoring, control and action plan	Monitoring
Management Information System	Monthly	Source (DAR online)	Monitoring, control and action plan	Monitoring

Interruption report	Daily & Monthly	Source (SCADA)	Monitoring, control and action plan	Monitoring & control
Progress of various schemes	Monthly	Source	Consolidation Monitoring	Summary reports
T & D loss	Monthly	Source (Energy Accounting under R-APDRP)	Monitoring, control and action plan	Monitoring & control
Collection efficiency	Monthly	Source (LT billing)	Monitoring, control and action plan	Monitoring & control
AT & C loss	Monthly	Source	Monitoring, control and action plan	Monitoring & control
Installation checking & Thefts	Monthly	Source	Monitoring, control and action plan	Monitoring
Disconnection	Monthly	Source (LT billing online)	Monitoring, control and action plan	Monitoring
HR activity (Vacancy statement)	Monthly	NA	Source (ERP-HR)	Monitoring & action plan
Inventory position	Forth nightly & Monthly	Source (Oracle Inventory)	Monitoring, control and action plan	Monitoring & action on key items
Material credit and debit report	Monthly	NA	Source (Oracle Inventory)	Monitoring & control for key items
Consumer General Ledger (CGL)	Monthly	Source (LT billing online)	Accounting, posting & adjustment	Monitoring and control
Trial Balance	Yearly	NA	Source (GL – ERP)	Monitoring and control
Profit and Loss Account	Yearly	NA	Source (GL – ERP)	Monitoring and control
Balance Sheet	Yearly	NA	Source (GL – ERP)	Monitoring and Control

Source: "Use of IT system in power distribution reports", PowerLine, September 2009.

With effective implementation of information technology through computer technology it is easier for chiefs of different offices to monitor all the indicators on the computer by just clicking a button. It is possible for him to control all operations for achieving the set goals of the company. As far as divisional performance is

concerned, a divisional engineer can easily accomplish analysis of key indicators to improve performance at the divisional level.

2.9 STRATEGIC PLANNING

Strategic planning is a management tool which is helpful to a company to focus on its vision and priorities in response to the changing environment. It has to ensure that managers are working towards the same goal.[66]

2.9.1 NEED OF STRATEGIC PLANNING

Strategic planning is the first need for any management to operate in the present age of high industrialization and competitive market conditions. GUVNL specifically, the need for electrical energy is growing at rapid pace because of rapid growth of population, industrialization and urbanization. It results in high load density pockets with multi-storied complexes[67]. This progress is coupled with manifold increase of deep tube wells to supplement to raise low ground water level. A huge number of electric pumps are connected to the system in rural areas[68]. Need of power is rising very high in the country in the wake of rapid industrial progress, with the pace of industrialization in the present; the need is going to increase in future. In order to meet the future power needs of the nation, it is essential to upgrade the existing distribution system and to do proper planning. The companies have to plan to meet the present as well as the projected future demand for quality & reliability of power. In the context of the current chronic power shortage[69] and shooting prices of fuel, it is essential to eliminate high losses in the transmission and distribution systems. Proper distribution system, strategic planning, financial support and efficient implementation of plans should be able to bring down the losses and provide uninterrupted & quality supply to the consumers. Planning can be worked out differently for different time zones and accordingly it can become long term and short term planning[70] as the need be.

2.9.1.1 SHORT TERM PLANNING

To ensure proper distribution planning, it is necessary to study the existing electrical network, ascertain the loss level and decide on immediate action to be taken to meet the present requirement of consumers. It has to make sure to provide them uninterrupted and quality power supply. It is observed that 11kV feeders are over

loaded as they operate with more than 100% of their rated current carrying capacity. It results in very high technical losses. This problem needs to be immediately resolved through effective short-term planning. Short term planning is supposed to fulfill the following objectives:

- To adjust capacity of 11kV feeders, distribution transformers, and LT lines.
- To initiate action initiate to bifurcate heavily loaded 11kV feeders.
- To augment the present conductors with properly sized conductors.
- To reduce length of LT lines.
- To arrange for proper maintenance.

2.9.1.2 LONG TERM PLANNING

Long term planning is normally executed as a part of the master plan for the distribution system as a whole. It normally considers a period of five to ten years. It is based on load forecasts for the state level as well as for local requirements. It may consider plan of industrialization and agricultural load forecasts. The long term plan is supposed to consider the following objectives:

- To provide for additional capacity and investments required to meet the load growth. Substations and 11kV lines can be set up in coming years.
- To upgrade the existing network and transmission capacity.
- To work out strategies for reduction of technical losses.

2.9.2 STRATEGY FORMULATION

Strategy is supposed to specify general direction in which an organization can plans its actions to attain its goals.[71] Management Control System (MCS) is a tool which is useful to implement strategy. Strategy formulation can be executed on the basis of SWOT Analysis as it is spelt out in earlier part of the chapter. In the present business environment, strategy formulation should be the first step that a management has to start with.

2.9.3 STRATEGIC PLANNING PROCESS

Strategic planning is a process of deciding the programs, which each divisional office will follow. It has to be done within approximate amount of resources that will be allocated to each program over the next several years. Distribution companies operate on financial year basis. Therefore a process of strategic planning should start just prior to preparation of the annual budget. The process involves the

following steps; (1) Reviewing and updating the strategic plan of last year. (2) Deciding on assumptions and guidelines. (3) First iteration of new strategic plan. (4) Its analysis. (5) Second iteration of new strategic plan. (6) Final review and approval.

2.9.3.1 REVIEWING AND UPDATING THE STRATEGIC PLAN

The first step in the annual strategic planning process is to review and update the strategic plan that was agreed upon last year. The actual experience of first few months of the current year is reflected in the accounting reports. It can be extrapolated for the current year to obtain an estimate. The new program implies that strategic decisions on revenues and expenditure are to be incorporated in the current year. In order to increase revenue from villages, a plan is decided merely from the previous year's historical data. More franchisees may be given in rural areas to increase revenue collections & reduce in losses. Such a strategic decision entails on previous year's performance data which is to be reviewed on the basis of its financial implications and corrections. They are to be applied while planning is worked out for the current year.

2.9.3.2 DECIDING ON ASSUMPTIONS AND GUIDELINES

Effective strategic plan incorporates broad assumptions on growth. They relate to consumers, prices of electricity and impact of CERC/GERC regulations. These assumptions are to be reexamined. If necessary, the changes can be incorporated with the latest information. For example, Gujarat Electricity Regulatory Commission (GERC) is the regulatory body. It regulates operations of distribution companies in Gujarat. The planning has to prepare on the basis of current supply code. But then after if GERC makes changes in the supply code which may have substantial financial impact on such assumptions it has to be updated while carrying out strategic planning.

2.9.3.3 FIRST ITERATION OF THE NEW STRATEGIC PLAN

Using the assumptions, objectives and guidelines, each division will prepare a strategic plan. It may include different operational plans. The divisional staff will carry out much of the analytical work. If necessary, they may consult business planning and budget control cell (BPC) at the corporate office for the purpose of clarity then the guidelines, assumptions and instructions may be worked out.

2.9.3.4 ANALYZING THE STRATEGIC PLAN

When business planning and budget control cell of the corporate office receives business plans for each division, these plans are incorporated into the master corporate strategic plan then the plans are analyzed in depth. Like the Dabhoi division submitted a plan to increase the technical staff personnel. It is then verified whether the additional staffs is really needed. The Radhanpur division presents a plan for increase in repairing charges and the reason given is rise in transformer failure rate. So it is to be verified whether the justification sounds realistic. Based on this planning, the BPC at the corporate office can work out the cash requirements for the whole organization and then it may indicate a need for additional finance for the proposed plan.

2.9.3.5 SECOND ITERATION OF THE NEW STRATEGIC PLAN

After analyzing the first submission, revision of the plan may be needed for certain divisions. But any revision may lead to change in the assumptions and guidelines, and eventually all other divisions too are affected. When all plans are put together it may indicate that the cash spent on increased inventories and capital expenditures is more than a safe and tolerable limit. It happens so there may be a need to postpone these expenditures for another six months.

2.9.3.6 FINAL REVIEW AND APPROVAL

In order to arrive at the final review of the proposed plans and their approval the members of the BPC should discuss the revised plan. The Managing Director shall give final approval only after the members find it satisfactory. The approval has to come prior to the process of the budget preparation begins. The reason is that the strategic plan is an important input to that process.

2.10 BUDGETING SYSTEM

The distribution companies of the GUVNL have indicative budgeting system. It generally focuses on indicative level of the revenue over the next year. Currently, there is no time bound schedule to follow. It is followed except that it is ensured that the revenue budget is compiled before starting of the financial year. The budgeting system, therefore, needs to be revamped if it has to act as a substantive tool of

management control. This revamping can be brought about by incorporating following changes:

1. The first and foremost feature, which needs to be ushered in, is a phased budgeting exercise. The budgeting planning should be executed over at least for last two quarters, preferably, three of the current year. Specific planning levels should be set and achieved during this period. An executive engineer who is the head of a division, will have to prepare a budgetary plan to affect reduction of T & D losses below 15% in the next five years. However, the plan has to justify the budget with realistic figures. It can be implemented in a phased manner.
2. The budgeting exercise should be closer to the projections of demands. It is necessary because the degree of accuracy of the demand projection(s) will determine a degree of utilization of the budget as effective MCS tool. An Executive engineer, the head of a division, will have to consider the future load demand. It may help him to justify a budgetary plan to prepare infrastructure to meet future demand in a respective area. In addition to it, by considering the yearly target in reduction of T & D losses, a divisional head will have to divide into then uniform level of monthly targets. This defeats the purpose of budgeting.
3. The budgeting exercise should shift its focus from exerting financial control to affecting cost control. There has to be greater stress on planning expenditures and budget it head wise. It will also throw up detailed variance reports and will thus; result in closer monitoring of major areas of financial loss. The chief of a division will have to concentrate on efforts to reduce financial loss of a division which includes head wise expenditure visa-vise AT & C loss of a division.
4. As a part of the budgeting process each division should be asked to submit a list of expenditures on which they would exercise cuts. Likely, a divisional officer shall be asked to put a cut in specified expenditures. It is also justified with different methodology.
5. The management control system, which is now based on a revamped budgeting process, has to develop monthly or quarter-wise mechanism of reviewing performance of each division. This mechanism goes with respect to revenues generated / costs incurred &/or the variances. It has to be entrusted finally to the BPC.

6. The top management has to ensure special care through the BPC to detect and address any effort to dilute the variances. A way to affect control could be by building reward mechanisms, both in monetary and non-monetary term. They may be in the form of promotions, awards etc on performance appraisal report.
7. In view of the profit center concept, each of the responsibility centers in company should be asked to prepare expense budgets and revenue budgets and/or profit budgets will add more substance to the budgeting process.

2.11 IMPLEMENTATION OF STRATEGY

The present research seeks to develop a framework of basic responsibility center. It is based on the profit centers concept. The essential elements and achievement of the concept will be a clear demarcation of areas of the profit centers. At initial stage, it may exclude allocation of overheads and administrative expenses carried out at the corporate office or circle or divisional offices. It has to ensure that the management control mechanism is easy to start with. Lucidity and relative ease of implementation is a paramount feature to facilitate acceptability. Once the framework goes deeper in the system advanced aspects such as detailed overhead allocations and conversion from cost to profit to investment centers, etc. can be introduced in a phased manner. The responsibility center -based management control system will not only strive for better control for management but it will also aim at ensuring viability and market competitiveness for improved business at divisional levels throughout the company.

2.12 IMPLICATION OF PROFIT CENTER CONCEPT

The concept of establishing of a division as a profit center carries implication and advantages as detailed in the following lines:

- The quality of decision will improve. The reason is that a manager closest to the point of decision making takes decisions.

  Quality of decision

  Indrapuri is a subdivision that falls under the Vishvamitry East Division. It had to cater to a huge number of consumers say about sixty thousand and that two with limited manpower. Looking to the strength of consumers, the corporate office decided to bifurcate the subdivision by way of creating another new subdivision. It proved a

lengthy procedure & involved a huge capital outlay. However, under the profit center concept, an Executive engineer would be in a position to resolve this issue quickly and in shorter possible time and it would not have financial implications. It is just like that some of the consumers may be transferred to the Panigate and Karelibaug subdivisions, which cover comparatively less consumers.

- The speed of operating decisions will increase, since they do not have to be referred to the corporate headquarters.

Fast operational decision

It was reported that the 11kV Warasia feeder of Indrapuri subdivision was overloaded and resulting in to high line losses. It caused frequent interruptions in the power supply to the consumers. Looking to the above fact, subdivision in-charge i.e. the Deputy Engineer immediately prepared a proposal for feeder bifurcation. The result expected from this project would be as it is shown in the table below. It has investment outlay of ₹ 18.38 lacs.

	Before Project	After Project
T&D	18.14%	12.18%

CASH FLOW ANALYSIS

Year	Incremental Inflow	Incremental Out flow	Net Inflow
	(₹ in lacs)	(₹ in lacs)	(₹ in lacs)
0	0	18.38	-18.38
1	12.24	3.47	8.77
2	12.24	3.47	8.77
3	12.24	3.47	8.77
4	12.24	3.47	8.77
5	12.24	3.47	8.77
6	12.24	3.47	8.77
7	12.24	3.47	8.77
8	12.24	3.47	8.77
9	12.24	3.47	8.77
10	12.24	3.47	8.77
IRR			46.70%
Pay Back period (@12%) (In years)			2.6

If the internal Rate of Return (IRR) is more than 20% it is recommended to implement the project immediately. However, as per Delegation of Power (DOP), subdivision forwarded the proposal to the divisional office on 22nd March 2006. The divisional office took 16 days for scrutiny and then it was forwarded to the circle office on 9th April 2006. The circle office took another 29 days to process the proposal and forwards it further to the corporate office on 8th may 2006. The officer at the corporate office scrutinized the proposal after getting the understanding of the field situation from a respective field officer and finally accorded sanction on 23rd August 2006. This process took about merely three and half months to obtain the final approval from the corporate office. Then the proposal was implemented in another one and half month. Thus, starting from the point of the project proposal to its implementation, it took about six and half months.

With the profit center concept, a profit center of a divisional office would have powers to sanction the project if the IRR is more than 20%. The head of a profit center would be accountable for its outcome. Thus, the process time can be minimized and delay can be avoided. It will go in order that more benefits of capital expenditure can be reaped.

- When the top management is relieved of day-to-day decision-making, it can concentrate more on broader issues.

Day-to-Day decision-making

Presently, many a time the corporate office monitors operational activities on day-to-day basis. Under the new profit center concept, the corporate office has to concentrate only on the overall performance of a division and this is readily available from the BPC. By doing this, the corporate office will be relieved from day to day operational decisions and activities related to them. The corporate office would be able to concentrate more on strategic formations. It would enable it to develop competitive edge in the business.

- Profit centers are similar to independent companies. They provide an excellent ground for general management. Their managers gain experience in managing all functional areas. The upper management gets an opportunity to evaluate their potential for higher-level promotions.

- Profit consciousness too is enhanced. Since managers, who keep the responsible for profits, have to seek constantly ways and means to increase profit. For example, a manager of a revenue center tends to authorize for such expenditures by which a sale is increased. A manager responsible for profits on the other hand, will be motivated with his authority to incur expenditures that would increase his profits.

- A profit center provides ready-made information to the top management on the profitability of the company and its individual components.

  On hand information

  At present, profitability of MGVCL company as a whole is ascertained yearly by preparing profit and loss account. It is done at the corporate office. Nevertheless, to analyze and diagnosis better/worse performing component, one has to wait till the end of the year when it accounts. It would be then difficult to pin point immediately a weaker division in terms of profit/loss. For instance it was at the end of the financial year 2005-06, when performance was analyzed for the Lalbaug division and the Vishwamitry East division. It becomes clear that the Lalbaug division had could claim higher than the revenue targets, and Vishwamitry east division (VED) was little lagging in meeting the revenue targets. However, in terms of profitability, VED appeared profitable than Lalbaug division. It was because of high operating cost at Lalbaug division that the profit was lower while low operating cost resulted in higher profit for the VED.

- Output of profit center is readily measured because of it, profit centers become responsive to improve their competitive performance.

Cost consciousness
Presently, a divisional performance is monitored regularly in terms of revenue collected & losses accounted. Because the operating cost out lay is not related with the revenue collection, a manager of a division is not much inclined to develop better tradeoff between cost incurred and revenue realized. In order to improve the interruption index, a manager at a sub division may suggest that the underground cables may be laid even if it is not participating in revenue generation. However, the interruption index can be improved by proper and scheduled maintenance.

2.13 CONCLUSION

To sum up the discussion it is observed that the existing system has lacking in proper management planning and control and it, thus, suffers from many weaknesses. Several strategies and decisions may project only a hazy picture. It would be difficult to understand not only by an outsider but also to insiders. Because of such difficulties, customer satisfaction is lacking and company faces many problems with its customers.

In view of the above, a system is suggested by which each action can be tracked and long term strategic plan can be prepared for further improvements. It may be understood as a paradigm shift from Push Model to Pull Model of business. It emphasizes a shift from business measurement to performance measurement[72]. With it; it creates competition among the divisions of the company to make commercially viable operative units. In this light, changes are proposed that are as follows:

- It is proposed to set up Loss Control Cell (LCC) at each division in order to monitor and control energy losses. It can be done with analyzing, preparing, and implementing various strategies.
- It is proposed to form Business Planning and Budgetary Control (BPC) Cell at the corporate level. It may help to prepare long-term business plans. This cell can monitor and implement strategy once circle offices are proposed to be eliminated. It operates being a co-coordinating unit.

- For deriving a profitability of a division, it is proposed to adopt a model called Weighted Average Sale Price (WASP Model). It can eliminate effects of cross subsidization.
- Each division shall operate as a profit center. It will enhance on its part decision power, transparency, accountability and responsibility towards achieving the set goal of financially viable distribution business in Gujarat.

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