CHAPTER: 1

INTRODUCTION

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1. INTRODUCTION

Power is inevitable to growth. In fact, the power sector constitutes the back bone of economy. Efficient and uninterrupted electrical power supply with a high degree of reliability and quality is a key to the country's economic growth. Historically too, the GDP growth rate is observed to rely heavily on factors like energy generation / consumption[1]. Besides, it turns out to be an important indicator of standard of living measured by consumption basket.

At the chief ministers conference in May 2007, Prime Minister Dr. Manmohan Singh lamented, "In fact, time is running out and unless we are able to arrest the growing shortages, ...the effect on our economy may well prove disastrous....." In this light, warned, ".....slippages in this vital sector (power sector) may trip the country's economic growth...."[2] He was referring to the present status of India's economy with specific reference to the power sector.

1.1 PROBLEM OF THE STUDY

Energy is essential input to any economic activity such as agriculture, trade, manufacturing, commerce and services. It is kinetic force to run them, mobilize them and to reach them to expected output or objectives. Overall electricity supply system is divided into three main components: (a) Power Generation; (b) Transmission; and (c) Distribution. In India the power generation has increased from 420.6 Billion Unit (BU) during 1997-98 to 771.551 BU during 2009-10 [1 Unit = 1 kWh].[3] Despite the fact that installed generation capacity in India has increased from 1361MW at the time of independence (1947) to 1,67,077 MW as on 30th November 2010[4], severe capacity shortage continues to plague the sector and these shortages are likely to stay in the medium term. According to the 2009-10 report of Ministry of Power, India faced a peak power deficit of about 12.6% and energy shortage of 9.9%.[5] Although India remains the fifth largest power generator in the world, it stands among those with the lowest per-capita electricity consumption. It is only about 612 kWh / year as compared with the world average of 2701kWh / year.[6]

In the case of power distribution sector, the issue remains that of system improvement. The first point is to bring down India's AT&C losses to an

internationally acceptable level of about 9-10%. For India the present level of 33% assumes alarming priority. Wastage of high cost energy with high technical losses may be prevented. Wastage through inefficient use of electricity may be avoided. The financial health of the sector may be improved by curbing theft. All these are infections to cause ".....a cancer of the power sector."[7]

In the present context the performance of State Electricity Boards (SEBs) and its financial status too are the matters of serious concern. It is evident that losses assume an alarming level of ₹ 32000 crores. It is equivalent to about 1.5% of the GDP. In the beginning of the 21st century, out of the total energy generated approximately just about 55% to 65% of it goes towards billing and to draw income to the SEB only 41% of it is realized as resulting in aggregate technical and commercial losses (AT & C losses) of the order of 50-60% for some states.[8] Further, transmission and distribution (T&D) losses of the state are reported as high as 35%-45%. As compared to low rates of 10% as reported in developed nations like the UK, the USA, Australia it is too high. It is again alarming high since Japan reported T&D losses as low as 4-8 percent.[9]

1.1.1 REFORMS AND DEVELOPMENTS

Before a decade, the power sector in India was dominated by State Electricity Boards. Formulated under the Electricity Supply Act, 1948 and owned by the state governments, these boards were entrusted with three basic functions like the generation, transmission and distribution of electricity throughout the state. Accordingly, the SEBs used to undertake responsibility of arranging the supply of electricity in the State. It has been noticed that over a period of time, the performance of SEBs deteriorated on account of various factors infecting its performance. On usual ground, the SEBs were unable to take decisions on tariffs in professional manner. They were not allowed independently to determine the tariffs. In practice, the State Governments used to decide the tariffs. As a consequence to it, cross-subsidies reached unsustainable levels. This turned out with a big problem.

In order to address this problem, distancing of SEBs from the respective governments was the first need. It will dissociate professional need like determination of tariffs from the political power. Accordingly, independent electricity regulatory authority was created in 1998 and with it Electricity Regulatory Commission Act, 1998 was enacted. The Act allows the provision of

setting up regulatory authorities for conducting regulatory activities. It also provides for setting up the Central and State Electricity Regulatory Commission with authority to determine tariffs.

Further, the necessity of new legislation was much felt in order to create competitive environment in the power sector and to cope effectively with it. The objectives were to encourage private participation in generation, transmission and distribution, transfer regulatory responsibilities from the Government to Regulatory Commission, create transparent policies, improve reliability and quality of power supply, enhance customer services and to facilitate the introduction of new concepts like power trading, open access etc. In general, it was to promote efficiency in the power sector in India. Besides, a need too was felt to rationalize the provisions in the Electricity Act 1910, the Electricity (Supply) Act 1948 and to merge them into a comprehensive legislation. On the part of each of the State Governments, it became necessary to pass its legislation and to affect reforms.

1.1.2 THE ELECTRICITY ACT, 2003

After extensive deliberations and consultations undertaken with the states and all other stakeholders and experts, the formulation of the new policy was finalized as the Electricity Bill, 2001. The Bill was passed by both the houses of the Parliament and it received the endorsement of the President of India on 25th May, 2003. It finally was recorded on the Statute Book as "THE ELECTRICITY ACT, 2003".

The Electricity Act, 2003 aims to consolidate the laws in relation to the generation, transmission, distribution, trading and consumption of electricity. Its objective is to take effective measures for development of electricity industry.

The key objectives of Electricity Act 2003 can be summarized as follows[10]:-

- Promoting competition therein, protecting interests of consumers and ensuring supply of electricity in all areas with adequacy and equality.
- SEBs shall be re-vested by the state governments in government companies to undertake business of electricity to reduce loss. [11]
- Rationalization of electricity tariff and ensuring the transparent policies regarding the subsidies.
- Creating transmission entities and system operators, and providing non-discretionary open access to transmission network to all the participants.
- Promoting efficient and environmentally benign policies.

- Constituting the Central Electricity Regulatory Commission ("CERC") and State Electricity Regulatory Commission ("SERC") and establishing the Appellate Tribunal.[12]

Electricity Act, 2003 has affected the following key changes in the electrical industry:

a. Generation

i. Private companies do not require to obtain license or approval from the state government for setting up the plant leading to much faster implementation.[13]

ii. They are free to construct, operate and maintain their own captive power plants.

b. Transmission

i. All transmission entities have provided non-discriminatory open access to all market participants[14].

ii. The energy transmission business and the load dispatch function are separated to avoid conflicts of interests.[15]

iii. Transmission licensees are barred from participating in trading activities and vice versa. It is to ensure non-discriminatory treatment in an open access scenario.

c. Distribution

i. All future power procurements by distribution licensees need to be carried out on competitive tariff based bidding process.[16]

ii. Distribution licensees are allowed to setup parallel networks.

iii. Distribution licensees can appoint distribution franchisees.

iv. The retail tariffs are rationalized in a phased manner with transparent subsidy payment requirements.

v. Metering of all electricity supplies are made mandatory.

d. Trading

i. Trading is allowed as licensed activity.[17]

ii. The exchange of power supply is encouraged through power exchanges.

Majority of the states have unbundled their SEBs into separate units as the generation units, transmission units and distribution units. These operate as autonomous entities. All states, except those like Arunachal Pradesh and Nagaland,

have formed the State Electricity Regulatory Commission (SERCs).[18] This Act has enforced reforms in the power sector and infused dynamism in its operations. This Act announces **Electricity as Industry and all segments of the electricity sector as individual profit centers.** The spirit of the new Electricity Act, 2003 is to generate healthy competition in all spheres of activities in the power sector and hence, turns to provide an opportunity to learn planning and control system in context of the power sector and specifically in the power distribution sector.

1.1.3 ELECTRICITY IN INDIA

The National Electricity Policy of the Government announces the vision of electricity in India as

"Reliable and quality power at affordable price is to be made available to all by the year 2012"

The energy requirement in the country at the end of the X Plan, i.e. March'07 was recorded as 720 billion units (BU). By March, 2012, it is likely to increase to 975 BU. According to it, a target of additional generating capacity of 41,110 MW was planned for the X Plan (2002-07). But it was observed that during the X Plan period the generating capacity could be added up to 40,000 MW. In order to meet the target of making reliable and quality power available to all by the end of the XI Plan in year 2012 it is planned to ensure a capacity addition of 78,700 MW. An expected addition of 62,700 MW is however, feasible during XI Plan period.[19] Further, a capacity addition of 1,00,000 MW is planned for the XII Plan (2012-2017) to meet the demand of electricity in future. With this level of capacity addition by the end of XI Plan, the country is likely to suffer a peak power shortage of about 12.7% and energy shortage of 5.6%[20]. It may be seen that with the capacity addition of over 1,00,000 MW during the X and XI Plan, the mission of providing power to all by 2012 is expected to be a reality.[21]

Economically, one unit saved is better than one unit generated. In the context of the power distribution sector saving of one unit of electricity is as good as reducing one unit loss. Through strong control and efficient performance of the power distribution system will ensure development of both the economy and society of India. Efficient strategic planning in the power distribution sector can reduce losses up to 15% at the end of XI plan and up to 10% at the end of XII plan. This is the target that the Ministry of Power keeps under the Restructured Accelerated Power Development

and Reform Programme (R-APDRP) in town areas[22]. In view of this, it is of paramount importance that besides commercial efficacy distribution companies curbs and reduce distribution losses by improving operational and distribution efficiency.

1.2 RATIONALE OF THE STUDY

Since the India's independence, the electric power supply has been viewed as the public right and the public service as well. The state governments are supposed to provide services related to it. Yet, it is a regretting fact that ill management and poor governance lead the units to rising deficits and as a result of it SEBs are turned into sick units. Besides, as stated earlier, despite some of the structural and regulatory reforms the power distribution sector is plagued with huge transmission and distribution losses. They occur largely due to outright theft and un-metered supply of electricity, low productivity and lack of accountability. They go hand in hand with unreliable power supply, poor quality, lack of concern for consumers and a highly skewed tariff structure. At operational level, the system of billing, collection of dues, customer service and financial health of power distribution companies are some of the areas that demand urgent attention. The power distribution sector in India is faced with multiple challenges that need to be addressed properly by putting up a sound governance system with adequate control to check any kind systemic and operational slippages and to improve the efficiency and effectiveness. In this light, it is of utmost significance to study management planning and control system in power distribution companies to make **power distribution a profitable business proposition.**

The *present research study* seeks to study the status of the present planning and control system. It seeks to work out strategy for implementation of new proposed system. It as well attempts to analyze Key Performance Indicators (KPIs) required to evaluate performance of power distribution companies with the Power Distribution business Scorecard (PDS). Specifically, this study makes an effort to answer critical questions like…

- What shall be the criteria for evaluating performance of power distribution companies in India?

- What are the benchmarks for performance measurement in power distribution business?
- In context of Government owned power distribution companies, which division (SBU) is profit making and which are good or bad performers?
- If private players express their interest in the power distribution business then what criteria should they adopt for choosing a division (SBU) or a strategic area?

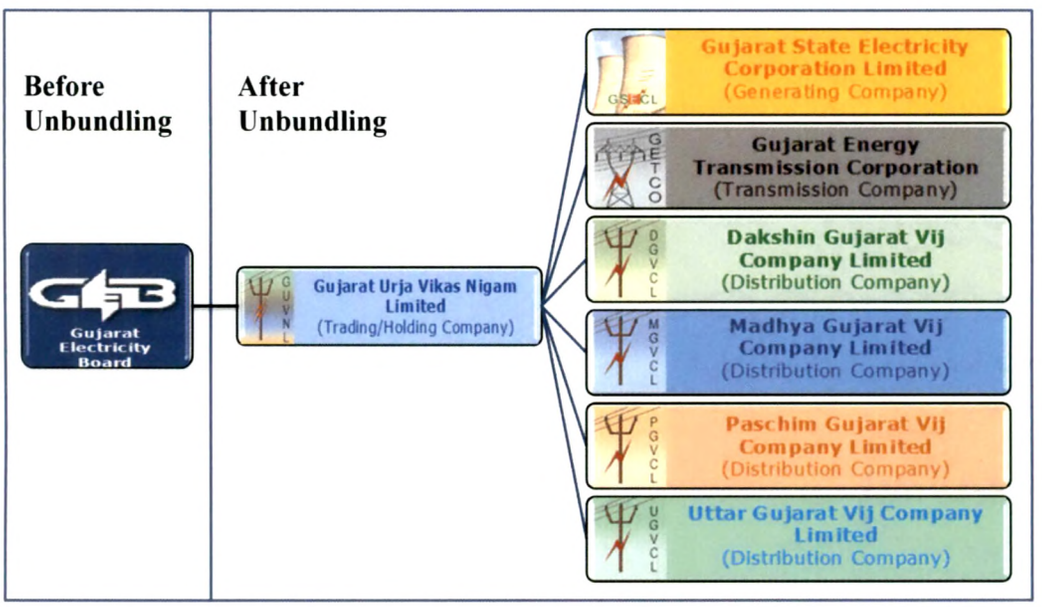
The present research will seek answers to these questions. Besides expounding weaknesses underlying in the internal planning and control system of power distribution companies it seeks to find ways to avoid heavy financial losses that may hamper the progress.

1.2.1 ELECTRICITY IN GUJARAT

Gujarat is a state in the western part of India with an area of 196 thousand sq. KMs. It has a population of around 55 millions. The state of Gujarat is highly industrialized and one of the most developed states in India. The state has witnessed the GDP growth of 10.4% in last few years. It is especially in sectors like manufacturing, agriculture, trade, transportation and service industry.[23]

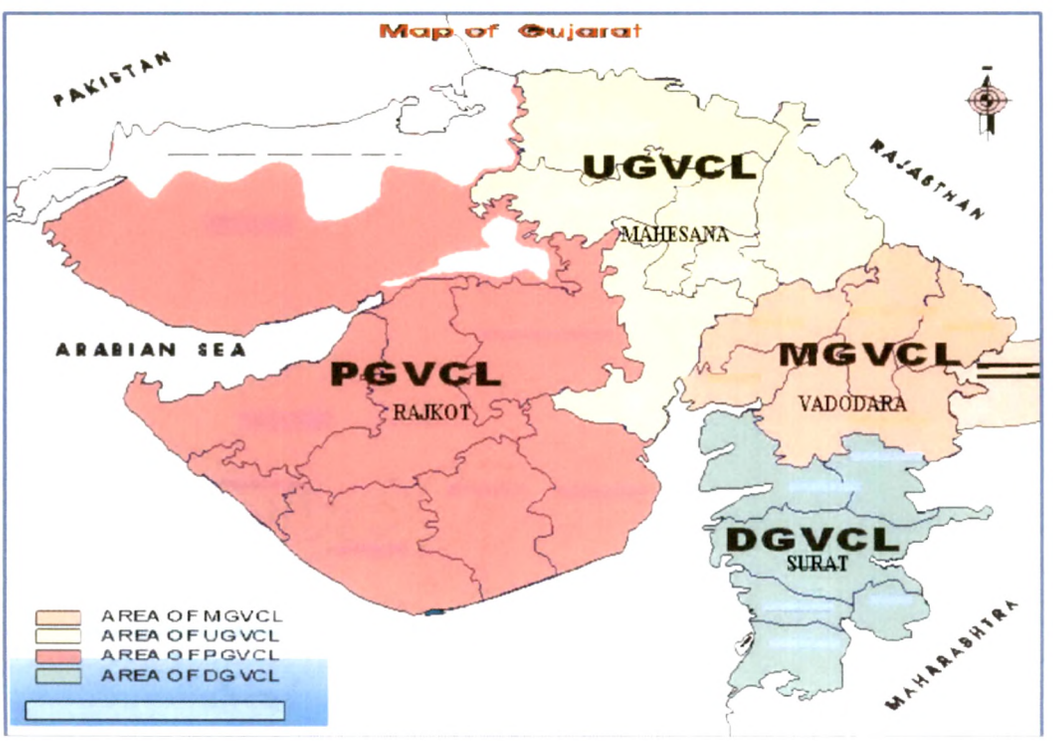
Under Electricity Act, 2003, the Gujarat Electricity Board has restructured itself into seven companies and the new structure came into effect from 1st April, 2005 (FIGURE 1-1). The generation company is named 'Gujarat State Energy Corporation Limited' (GSECL). The transmission company is called 'Gujarat Energy Transmission Corporation Limited' (GETCO). The total area of Gujarat has been divided into four regions like 'Dakshin', 'Madhya', 'Uttar' and 'Paschim'. Each region has a distribution company of its own. Accordingly, we have four distribution companies operating in Gujarat. They are known as 'Dakshin Gujarat Vij Company Limited' (DGVCL), 'Madhya Gujarat Vij Company Limited' (MGVCL), 'Uttar Gujarat Vij Company Limited' (UGVCL) and 'Paschim Gujarat Vij Company Limited' (PGVCL). The tasks like power-trading and co-ordination activities are being performed by residual company called 'Gujarat Urja Vikas Nigam Limited' (GUVNL). FIGURE 1-2 shows the service areas that these distribution companies look after.

FIGURE 1 - 1 : UNBUNDLING OF GEB



Gujarat has the per capita consumption of electricity as about 1424 kWh[24]. It is more than double of the per capita national consumption which is about 632 kWh.[25]

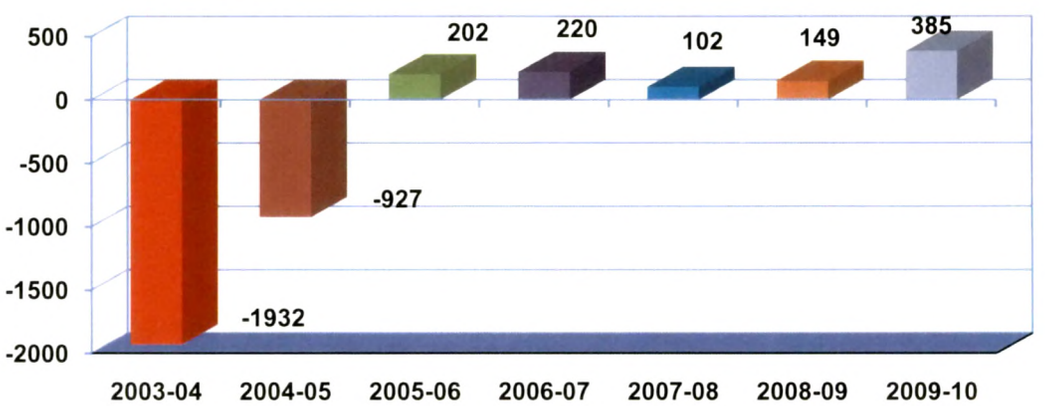
FIGURE 1 - 2 : SERVICE AREAS OF DISTRIBUTION COMPANIES



1.2.1.1 FINANCIAL PERFORMANCE

The financial performance of GUVNL and its subsidiary companies had turned around in 2005-06[26]. The companies started making profit with improvement in services rendered to 10 million customers of Gujarat that included 0.7 million agriculture customers. Of the total energy consumption, 39% is consumed by industrial and about 31% by agriculture consumers and remaining consumption is accounted for by household and other consumers. In the context of category wise revenue from sale of power, the highest revenue is realized from high tension (HT) consumers. In view of agriculture consumers, though largest in number, the revenue realized from them is only 2% of the total. The financial performance of the GUVNL during the years 2003-04 (prior to unbundling) to the years 2009-10 is shown in the bar diagram as below:

FIGURE 1 - 3 : FINANCIAL PERFORMANCE OF GUVNL



Source: Annual reports of GUVNL & its subsidiary companies.

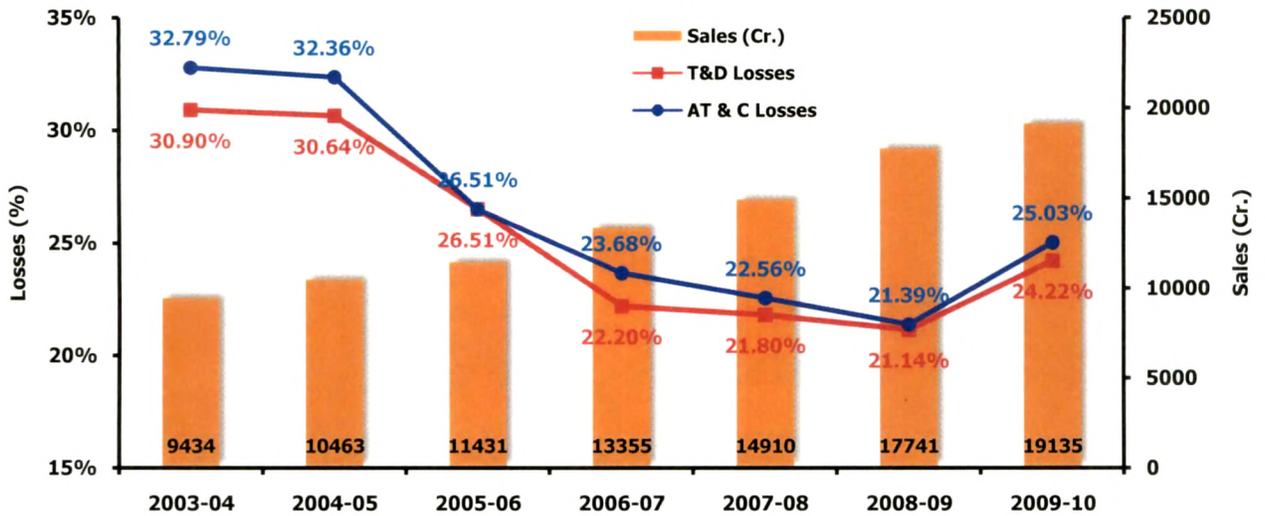
In view of the above, it is essential to study the performance of power distribution companies and suggest further improvements in different strategic areas. The objective of the study would be to raise the bar of performance to reach the vision of, "*Customer satisfaction through service excellence*" and to accomplish the mission, "*To provide reliable & quality power at competitive cost*". In addition to it, "*To reach global standards in reducing distribution losses*" would be the target that these distribution companies in Gujarat would aim at hitting.

1.2.1.2 LOSS PATTERN

Following the unbundling of the Gujarat Electricity Board (GEB) the losses incurred by the GUVNL and its subsidiary companies were reduced drastically. It marked remarkable reduction of about 15% in T&D losses in last six years, from 35.9% in

2002-03 to 21.14% in 2008-09. The figure 1.4 below shows the year-wise T&D losses and AT & C losses.

FIGURE 1 - 4 : T &D and AT & C LOSSES OF GUVNL



Source: Data compiled from annual reports and T&D reports of GUVNL & its subsidiary distribution companies.

The figure indicates that even with an increase of 88% in the unit sales in the last six years, the losses are considerably reduced by 33%. This marks a good achievement for power distribution companies in Gujarat[27]. Although, these companies of Gujarat has put up outstanding performance in last six years[28] the losses do not go below 15%. Thus, they not reach the target set by the Ministry of Power to be achieved by the end of the year 2012 under Restructured Accelerated Power Development and Reform Programme (R-APDRP)[29]. Hence, there is a need to study the overall performance of the power distribution companies in Gujarat including its performance in loss reduction.

1.2.2 DIVISIONAL PERFORMANCE

In the GUVNL and its subsidiary distribution companies, division offices are the endmost strategic business units. They operate through various sub-divisional offices and work under circle offices. They are accountable for performance of distribution companies.

At the outset, the divisional performance of each division is characterized with mix consumer pattern with categories of rural consumers to industrial and Extra High Voltage (EHV) consumers. In some divisions cent per cent consumers are fully rural consumers while in some other division cent per cent consumers are industrial

consumers. In a division like the Ankleshwar industrial division has 100% industrial consumers. In context of the total losses, the transmission and distribution losses of different division vary from 2% to 49%. Such losses make it an area of serious concern for further development. Distribution business has key areas to look into like generating standard for performance measurement and critical level of planning for new investment. In addition to it, high level of monitoring and control will prove vital to increasing revenue and reducing losses of these power distribution companies. It will further lead to improved and stable financial health of power utility in the state of Gujarat. Hence, the present research keeps an aim to evaluate divisional performance of the power distribution companies in Gujarat.

1.2.3 SCOPE OF THE STUDY

The research is supposed to focus on an analysis of internal planning and control system of the power distribution companies in Gujarat. The research seeks to develop and propose new management planning and control system with a view to increasing efficiency and effectiveness in distribution business in Gujarat. The study, therefore, keeps a bearing on development of **new concepts in the distribution sector to make each division a profit center**. The research examines all qualitative and quantitative aspects too to help evaluation of divisional performance on the basis of key performance indicators (KPIs). It finally attempts to develop the Power Distribution Business Scorecard (PDS).

1.3 OBJECTIVES OF THE STUDY

The present research therefore, keeps and agenda to examine internal control mechanism and performance measurement of the power distribution companies in Gujarat. It also proposes to examine its impact on divisional performance. It will be carried out through qualitative and quantitative analysis. Following are the major objectives of the research study.

- To study present planning and control system by carrying out SWOT analysis and to propose changes in the existing system to improve performance of power distribution companies in Gujarat.
- To carve out strategic business units of a power distribution company on the basis of business accounting and to prepare separate financial statements, i.e.

P&L account of an individual division on the following lines; (1) Input Energy handled/sold (2) Revenue realized from sales and cost incurred on purchase of input energy (3) Expenditure incurred on O&M, repairs, spares, supplies, consumables etc (4) Effect of transfer pricing (5) Allocation of overheads of the corporate and circle offices on division basis on different criteria and highlight existing division as a profit center based responsibility center whose performance is measured in terms of profit.

- To evaluate divisional performance of the power distribution companies with development of key performance indicators so as to develop Power Distribution Business Scorecard (PDS).

1.4 RESEARCH METHODOLOGY

In order to achieve the objectives mentioned above, the present research will follow an approach of combination of Exploratory and Conclusive research design. The research is planned and executed in two phases. The first phase involves exploratory research design to study the management planning and control system. It primarily focuses on the literature survey, interviews with executives, observations in terms of qualitative study and the SWOT analysis of power distribution companies in Gujarat.

The literature study includes survey of publications such as Annual Revenue Requirement (ARR) petition, Annual reports, CRISIL report, Distribution Reform Upgrades and Management (DRUM) reports, reports of Ministry of Power (MoP), Government of India, USAID-India and Power Finance Corporation (PFC) reports, and the statistics from Central Electricity Regulatory Commission (CERC) / Gujarat Electricity Regulatory Commission (GERC) and Ministry of State for Energy & Petrochemicals (MoSE), Government of Gujarat. All qualitative and quantitative research is conducted through various journals, periodicals, magazines and books so that the research objectives are duly fulfilled.

It can be summed up that the approach adopted seeks to include literature study, content analysis, case analysis using Indian Power Sector journals and books. It seeks to explore more on the efficiency & effectiveness of internal planning and control system. It keeps an aim to find out various key performance indicators and

test hypotheses based on the objectives to evaluate performance of major power distribution companies in Gujarat.

The second phase incorporates the descriptive and conclusive research designs. The hypotheses developed with the help of exploratory research studies will be tested using regression analysis. The variables are measured quantitatively in order to arrive at interpretable and comparable quantitative information to derive conclusions. The following hypotheses are framed for the purpose:

Hypo: 1. H_0 = There is no relationship between DTR failure rate (y) with number of agriculture consumers (x_1) in a division.

Hypo: 2. H_0 = There is no relationship between DTR maintenance (x_2) with DTR failure rate (y) of a division.

Hypo: 3. H_0 = There is no relationship between DTR failure rate (y) with number of agriculture consumers (x_1) and DTR maintenance (x_2) and in a division.

Hypo: 4. H_0 = HT line length per feeder (x_1) is not the significant factor in Transmission & Distribution loss (y) of a division.

Hypo: 5. H_0 = There is no relationship between total LT line length of LT circuits (x_2) with T & D loss (y) of a division.

Hypo: 6. H_0 = There is no relationship between T & D loss (y) with consumer mix (x_3) of a division.

Hypo: 7. H_0 = There is no relationship between T & D loss (y) to HT line length per feeder (x_1), total LT line length of LT circuits (x_2) and consumer mix (x_3) of a division.

Hypo: 8. H_0 = There is no impact of consumer mix on collection efficiency of a division.

Hypo: 9. H_0 = There is no relationship between Reliability Index to HT line length of 11 kV feeders in a division.

Hypo: 10. H_0 = There is no significant relationship between Reliability Index to number of feeders in a division.

Hypo: 11. H_0 = There is no significant effect of T & D loss (x_1) on profit (y) of a division on annual basis.

Hypo: 12. H_0 = There is no significant impact of collection efficiency (x_2) on Profit (y) of a division on annual basis.

Hypo: 13. H_0 = There is no relationship between Profit Before Tax (y) to T & D loss (x_1) and Collection efficiency (x_2).

1.4.1 DATA SOURCES

The laid down objectives of the present study can be fulfilled with the relevant data on the subject. The collected data include number of consumers, number of feeders, number of employees, number of transformers of various divisions, sent out and sold out units, T & D loss, AT & C loss, meter replacement, installation checking, availability of power supply, High Tension (HT) line, Low Tension (LT) line data, Distribution Transformer (DTR) data and new connections information of various divisions for last three financial years. Further, it requires financial data about revenue from sale of energy, collection, total assessment of energy, collection efficiency, Repairs and Maintenance (R&M) cost, employee cost and administrative and general expenses of various divisions. To evaluate divisional performance, the primary data is collected from the records of the trial balance, Management Information System (MIS) reports and AT & C loss reports of power distribution companies in Gujarat. Further, the data is obtained from structured Enterprise Resource Planning (ERP) suits and various reports like MIS reports, T&D reports.

The secondary data have been collected from the various sources such as Electricity Power Surveys, APDRP, IIMA report, Central Electricity Authority (CEA) reports, Annual reports, ARR petition, Accounting manuals, GERC resolutions & reports, reports from central authorities, power sector institutions and websites.

1.4.2 DATA PERIOD

The revenue and expenditure data needed for the present study are obtained for the period of last 3 years, i.e. 2007 to 2010. The data relate to 23 divisions having combinations like rural area, urban area, mixture of rural & urban area, GIDC area, industrial area, agriculture area, loss proved area, profit making area, costal area,

desert area, below poverty line consumer's area, rich consumers area and low water level area etc. The study has been carried out on the recent data of last three years following the unbundling of GEB. Hence, the data period has been considered for analysis goes from financial year 2006-07 onwards. The reason is that the year 2006-07 was the first year after completion of restructuring plan pursuant to Electricity Act 2003.

1.4.3 SAMPLING DESIGN

To pursue the objectives of the present research, the stratified sampling technique[30] is adopted. The total populations of division are segregated into segments of subpopulation as per the type of that division. Minimum of 25% samples[31] are selected from each segment.

The selection of division is made on the basis of the experts' opinion. Those involved in the process are officers such as the Managing Director, Executive Director, Chief Engineer, General Manager-Finance, Superintending Engineer and from outside the organization, consultants, institutional investors and academicians. There are experts too from various other institutions, training institutes, customers, and different leading intermediaries that were consulted for their opinion. The point is to project a wider and multifocal opinion on the subject through interactive mode of exchange of knowledge and experience.

1.4.4 ANALYTICAL DESIGN

Further, to fulfill the objectives of the study, data related to feeder input/output, division wise revenue / expenditure, detailed expenditure, collection efficiency etc need to be analyzed. The data are processed for calculating variance and trends in supply, consumption and feeder input/output.

The Power Distribution Business Scorecard (PDS) is developed and applied to 23 divisions that operate under the MGVCL, DGVCL, PGVCL and UGVCL. The performance results are tested for each division and the tool of testing is fine-tuned to create a MODEL for evaluation of divisional performance in power distribution companies in Gujarat.

The data collected for the present study is coded and processed using MS-Excel - Version 2007 spreadsheet and "Mc-Graw Hill – ACZEL Statistical Tools 5th[32]

software" and to arrive at descriptive and inferential estimates of mean, standard deviation, t-value, p-value, f-value, r^2 and r value.

Different statistical tools like SPSS etc are used to analyze the response data and secondary data. This is to carry out meaningful analysis for evaluation of divisional performance.

1.5 FRAMEWORK OF ANALYSIS

Robert Kaplan and David Norton's Balanced Scorecard Model is used to analyze the performance of divisions. The reason is that it has the framework that focuses on customers, internal processes, stakeholders and future requirement of business and it helps to create a system of linked objectives, measures, targets and initiatives that collectively describe the strategy of an organization and also how that strategy can crafted and fine tuned.

Robert Kaplan (Harvard Business School) and David Norton (IT consultant) led a research study in the year 1990. In their study they involved dozen companies. The purpose of the study was to explore new methods of performance measurement.[33] The study grew out of a belief that financial measures of performance were ineffective for modern business enterprises. The study expounded that if a company relies on financial measures of performance it may affect the ability of the organization to create future economic value only.

The traditional financial measurements did not sufficiently cover critical non-balance sheet factors like skills, competencies, and motivation of employees; customer and supplier relationships; innovative product development; databases and information technologies; efficient and responsive operating processes; innovation in products and services; customer loyalty and relationships; and political, regulatory, and societal approval. They, therefore, evolved and designed the balanced scorecard as a strategic management and control system. This would incorporate financial indicators with non-financial indicators. Managers need to know that if the business is to succeed in future and the future success depends upon the non-financial goals. In this respect, non-financial goals may turn out to be the 'leading indicators'.[34]

Kaplan & Norton describe the innovation of the balanced scorecard as follows:

"The balanced scorecard retains traditional financial measures. But financial measures tell the story of past events, an adequate story for industrial age companies for which investments in long-term capabilities and customer relationship were not critical for success. However, these financial measures are inadequate for guiding and evaluating the journey that information age companies must make to create future value through investment in customers, suppliers, employees, processes, technology and innovations."[35]

The balance scorecard combines long range strategic financial goals with day to day operations and helping companies focus on the future. The firm needs to focus and align every area of the business with the strategy, including manufacturing excellence, new product innovation, customer satisfaction, information systems, and finances.

1.6 CHAPTER SCHEME

The study spans over five chapters as outlined including the present introductory chapter which introduces the problem in the context of present scenario of the power industry and relates performance status to the international scenario. It also indicates the objectives of the study and the methods and design adopted to carry out evaluation of divisional performance.

Chapter II details on the existing management planning and control system. It also presents the SWOT analysis that is carried out to identify the problems in the existing system in view of planning and control. These details are followed by suggestions to affect improvement in the present control system.

Chapter III describes the concept of Power Distribution Business Scorecard (PDS) and presents evaluation of divisional performance. It relates to different areas as customer satisfaction to include power supply reliability, field maintenance service and customer service, financial performance to include cost & losses, revenue and collection and finance & profitability. The internal business includes metering and billing performance, safety and accidents, theft prevention business & legal matters,

and learning and growth includes matter like human resource, project development and training.

Chapter IV presents the results of the empirical analysis carried out for the distribution companies on the Business Performance Measuring Parameters (BPP) to identify areas for improvement.

The last Chapter V narrates conclusions of the present research study. It suggests improvement in the present performance of power distribution companies in Gujarat with a view to enhancing efficiency of different divisions and improving the service to consumers and better growth of the power sector.

END NOTES AND REFERENCES

[1] Suresh, MVJJ and Ruben Sudhkar (2008), "Power Sector", Electrical India, Mumbai: A Chary Publication, Vol. 58, August, pp. 47-54.

[2] Sah, A. K. (2007), "Distribution System Improvement", Electrical India, Mumbai: A Chary Publication, Vol. 50, December, p. 113.

[3] Ministry of Power (2010), Annual Report 2009-10, New Delhi: Government of India, p. 7.

[4] Ministry of Power (2010), op. cit., p. 8.

[5] Loc. cit.

[6] Suresh, MVJJ and Ruben Sudhkar (2008), op. cit., p. 47.

[7] Sah, A. K. (2007), op. cit., p. 113.

[8] Power Line Research Team, "T & D In India", New Delhi: India Infrastructure Publishing Pvt. Ltd., March 2004, p. 60.

[9] CRIS: CRISIL Group (2009), op. cit., p. 75.

[10] Ministry of Power (2003), The Electricity Act 2003, Notification published in the Gazette of India, New Delhi: Government of India, June 10.

[11] Ibid., Sub-section (1).

[12] Ibid., Sec. 76 to 78.

[13] Ibid., Sec. 73.

[14] Ibid., Sec. 42.

[15] Ibid., Sec. 25.

[16] Ibid., Sec. 42.

[17] Ibid., Sec. 52.

[18] CRIS: CRISIL Group (2009), op. cit., p. 76.

[19] Pradhan, Gireesh (2009), Lecture: "India Electricity 2009", New Delhi: FICCI, September 19.

[20] Electricity Power Survey Committee (2007), Report on Energy Requirement, New Delhi, March, p. 23.

[21] CRIS: CRISIL Group (2009), op. cit., p. 23.

[22] Ibid., p. 76.

[23] Jagadeesan, S. (2009), Lecture: "Gujarat: Emerging Energy Hub of India", New Delhi: FICCI, September 20.

[24] Loc. cit.

[25] Suresh, MVJJ and Ruben Sudhkar (2008), op. cit., p. 47.

[26] Joshi, Rakesh Mohan (2008), "Gujarat Electricity Board's Turn Around", Mumbai: The Smart Manager, March, p. 52.

[27] Ghosh, Saptadwipa (2009), "Better Basics: Trends In Utility Operational Performance", PowerLine, New Delhi: India Infrastructure Publishing Pvt. Ltd., Vol. 14, Sep., p. 128.

[28] Eapen, Leena Mary (2008), "Rating of Power Utilities Performance: Power Sector Reforms – Indian Experience", New Delhi: The ICFAI University Press, March, p. 156.

[29] FICCI (2009), "Sector Overview: New Investments, Rising Competition And Commercial Focus", Daily News #1, India Electricity 2009, September 19, p. 6.

[30] Cooper, Donald and Pamela Schindler (1999), Business Research Methods, Sixth Edition, New Delhi: Tata McGraw-Hill, p. 215.

[31] Ibid., p. 222.

[32] Aczel & Jayavel (2005), Complete Business Statistics, Fifth Edition, New Delhi: McGraw-Hill available on website http://www.mhhe.com/business/opsci/aczel05/, accessed on September 19, 2009.

[33] Singh, Manjit and Sanjeev Kumar (2007), "Balanced Scorecard Implementation – Global and Indian Experience", Indian Management Studies Journal, Vol. 11, pp. 21-39.

[34] Kaplan, Robert and David Norton (1992), "The Balanced Scorecard: Measures that Drive Performance", Harvard Business Review, January – February, pp. 71-79.

[35] Kaplan, Robert and David Norton (1996), "Using the Balanced Scorecard as a Strategic Management System", Harvard Business Review, January - February, pp. 75-85.