Chapter 6

The main objective of this chapter is to identify the current problems faced at the strategic level in the Distribution Network of PSPCL.
CHAPTER 6

6.1 Introduction

The Chapter 5 explains the physical hierarchy and information flow in PSPCL. This chapter focuses on the kind of problems faced at the strategic level of PSPCL. The backbone of PSPCL is the Sub-Divisional Officers (SDO) because SDO’s are direct link between the administration and the consumers. As pointed earlier also that the PSPCL is divided into

- Zone
- Circle
- Division
- Sub-Division

- Zone is headed by Chief Engineer (CE)
- Circle is headed by Superintending Engineer (SE)
- Division is headed by Senior Executive Engineer (XEN)
- Sub-Division is headed by Assistant Executive Engineers and Sub-Divisional Officers (SDO)

Talking about the strategic level there are five zones and hence five Chief Engineers to manage these five zones. The Distribution system is divided into five zones. The distribution department is headed by Director (Distribution). As shown in the Figure 6.1 Director (Distribution) is in constant with Chief Engineer of North (Jallandhar), Chief Engineer of Central (Ludhiana), Chief Engineer of South (Patiala), Chief Engineer Border (Amritsar), Chief Engineer West (Bathinda). The Chief Engineer of North (Jallandhar) has four Superintendent Engineers i.e. SE (Kapurthala), SE (Nawanshahar), SE (Jalandhar), SE (Hoshiarpur). These four Superintendent Engineers report directly to
Chief Engineer. These Superintendent Engineers have in turn XEN’s and SDO’s under them. These SDO’s and XEN’s report to the Superintendent Engineers. Similarly Chief Engineer Central (Ludhiana) has four Superintendent Engineers i.e. SE (Khanna), SE (Ludhiana-West), SE (Ludhiana East), SE (Ludhiana Suburban). The Chief Engineer South Patiala has four Superintendent Engineers i.e. SE (Patiala), SE (Ropar), SE (Sangrur), SE (Mohali). The Chief Engineer Border (Amritsar) has four Superintendent Engineers i.e. SE (Gurdaspur), SE (Amritsar Suburban), SE (Amritsar City), SE (Tarn Tarn). The Chief Engineer West (Bathinda) has four Superintendent Engineers i.e. SE (Bathinda), SE (Ferozpur), SE (Faridkot), SE (Mukatsar)

Figure 6.1 Physical Hierarchy

The Chief Engineers of different zones are in constant touch with the head office and also with the CE (Metering), CE (Material Management), CE (Stores & Disposal) and CE (RE and APDRP). The SDO’s makes various reports which they send to the XEN’s which in
turn they send to the SE’s which in turn send to CE and to the Director. The reports that are made by SDO’s are as follows

- Installed distribution type transformers
- Damaged distribution transformers
- Estimate of damaged distribution transformers
- Register of damaged distribution transformers
- Replacement against damaged distribution transformers
- Pending against damaged distribution transformers
- Installed Power transformers
- Damaged Power transformers
- Replacement against Damaged Power transformers
- Pending for replacement against Damaged Power transformers
- Final report for distribution transformers
- Final report for Power transformers
- Replacement of damaged transformers at the end of the month
- Inspection of the sub station
- Overloading of primary and secondary transformers
- Work progress for the Sanctioned packages
- Final Report for the state tube well due to Electrical fault
- Theft of conductor for month
- Final report for the theft for conductor
- 11 KV and lower voltage work progress under extension and improvement work plan
- Status of defective electronic meters on 11 KV I/O feeders at secondary sub stations
- Progress of installation of electronic meter on 11 KV I/O feeders at secondary sub stations
- Final report for the progress of installation of electronic meter on 11 KV I/O feeders at secondary sub stations
- Report of 11 KV feeder details at secondary sub stations
- Final report for 11 KV details at secondary sub stations
- Rural electrification work progress
- New 11 KV capacitor installations
- Damaged and repaired capacitor
- New 33 KV sub station work progress
- Augmentation of 33 KV sub stations progress
- New link Line work progress
- Work program under APDRP and other scheme
- Sample meter installation for un metered consumers
- Major equipment make list for secondary sub stations
- Report for tripping of 33 KV and 11 KV lines
- Daily log sheets
- Register format for battery inspection
- Max/Min load register
- Inspection and testing register
- Stoppage register
- Tripping and testing register
- Breakdown and shutdown register
- Damage of distribution transformers (Location, feeders wise)

These reports are made manually by SDO’s and then send to the XEN’s. The XEN’s then just make entries in their respective computers so that a typed printout is send to the higher authorities. There is absolutely no information system in the PSPCL. The manual reporting that is done by SDO’s causes a lot of problems to the strategic level. As the Chiefs are in touch with the head office with the CE (Metering), CE (MM), CE (S&D) and CE (RE & APDRP) and then these reports are sent to the Director and then Director reports to the Secretary Power and Regulatory Bodies. As shown in figure 6.2. The absence of any type of advanced information system leads to the delay in making these reports and also the Director has to call periodic meetings of CE from different zones to get the actual picture. This process leads to loss of time as CE’s have to come to Patiala which is the Head Office of PSPCL and most importantly it leads to delay in taking key strategic actions. The various issues and concerns that are looming on PSPCL are:
Figure 6.2 Information Flow
6.2 **ISSUES AND CONCERNS**

1. Information required by the board is compiled manually. Updating timely information is not available for the decision making.

2. Consumers deposit energy bills at pre-designed collection centres. Flexibility is required in the system.

3. Consumer bills are prepared through Regional Computer Centre (RCC), Chandigarh resulting in the time lags between reading and billing, thus a delay in the collection of the revenue.

4. It is difficult to monitor daily revenue collected and some funds always remain in the pipeline and thus unutilized.

5. Sub-division and division accounts are not computerized. All accounting activities like preparation of pay ledger, Works accounts, accounts and schedules are prepared manually. This leads to:
   a. Delays in HO consolidation and compilation.
   b. Timely monitoring of expenditure visa-a vis the budget is difficult.


7. Does not allow on line query.

8. Blocks working capital.


10. PSPCL would like to have better planning of work permits.

11. PSPCL has a large volume of complaint and needs to reduce the cycle time to process them.
12. Poor management of connected load results in transformer failure along with other related costs. Forecasting of load is an important area for system improvement.

13. The present organization structure does not allow for single point accountability as authority and responsibility is diffused.

The Strategic Information System in PSPCL can help in improvement and quality of supply, increased productivity, reduced technical and commercial losses, increased customer satisfaction and a fundamental change in the work culture. It also aims at minimizing human interference in commercial processes to avoid human error and chances of misconduct. This will improve overall quality of data and thereby an overall improvement in the flow of information for decision support. With the SIS the focus will be on:

- Timely decisions.
- Better consumer service.
- Reliable and timely information.
- Improvement in the work processes in terms of efficiency and information flow.
- Prepare to meet challenges of changing economic and business environment.
- Integrated functions for data to be captured at one logical point.
- Extract critical information in a format that is easy to interpret and helps decision making.
- Ensure proper utilization and interface of existing stand alone systems and hardware and software on PSPCL.
- Planned future investment in technology.
- Improved productivity in information systems and computing.
- Single version of truth for decision making.
- Quality data and better utilization of the resources.
- Availability and ease of accesses.

Since the area of governance of PSPCL is very extensive the current system of information flow does not allow the strategic level management to have a full control over the operations. To have effective management it is very important that strategic level management should have access towards the critical activities of PSPCL. But in present setup the strategic level of management has got virtually no control over the critical activities. They have to rely on the reports of Chief Engineers. The basic purpose of this study is to make a model for accurate flow of information. In the present scenario the strategic level of management is dependent on the Chief Engineers. The absence of any type of proper information system makes it virtually difficult even for the CE’s to report the matter at the earliest to the top management.

6.3 Problems

There are various problems faced by the strategic level people in the distribution network which includes:

1. Customer Services- There is no set procedure to know about the new connections, disconnections, grievances, complaints, bill generation, bill distribution and revenue collection. All these activities are very critical for the distribution network.

2. Operations and Maintenance- There is no set procedure to know about the installed assets in the field
   - The knowledge of the assets installed in the field can provide a better system a data storage leading to superior management process plus enhancements off cost
benefit ratio. The knowledge of assets can help in detecting the network conditions in real time and also it can help in the network improvement schemes. But in the distribution network there is no facility to view the assets installed in the field.

- There is no facility to provide information regarding the record of subtransmission distribution network and development of HT and LT network which in turn results in inability to segregate of 33/11 KV load consumer wise, feeder wise, distribution wise and sub station wise.

- There is no provision to manage substation assets so that unplanned downtime is minimized. This has cascading effect which results in the unscheduled maintenance and increase in inventory is increased. This is very essential in increased productivity and to improve resource utilization by having the right skills and the right spares at the required time and place.

- There is no system which provide information regarding how the sub-station monitoring for the planned outages would be taken care off by local staff posted at the sub-station.

- There is no provision for monitoring the feeder. Feeder management is very much important in revenue recovery, extent the cost coverage at bulk supply tariff.

- There is no provision in the determination in the place of outage and locate the device causing the outages. Also for the top management there is no provision in the building the graphic tools to analyze the place of outage.
• There is no facility to capture the data in the centralized place so that a better control can be done at all the levels. This is also very much important in smooth flow of the information to ensure quicker and more efficient power supply.

• There is no provision to better manage the process of acquisition of new connections, maintenance and updating of database of metered consumers and to facilitate disconnections and reconnections. This information is very helpful in integrating the data with the GIS system for the prompt resolution of issues.

• There is always a demand from consumers for the spot billing so that consumers do not have to stand in long queues for depositing the bills. This facility is also very helpful for the management also as by implementing the spot billing the revenue cycle is shortened.

• Efficient, fast, hassle free and flexible payment systems can lead to higher revenue collection and reduction in disconnection of services. This facility is missing in the present set up.
• There is no provision for the complaint center regarding the billing, metering, availability of supply, quality of supply and any other problem pertaining to the operation and maintenance of power supply.

• There is acute demand for the customer relationship management in the distribution network of PSPCL. For example online availability of billing data, facility to lodge complaints and track the status of progress, online registration for new connection, disconnection notice to be served to the defaulting customer. Although PSPCL has taken some initiatives in this direction but still they are at very nascent stage.

• There is no facility which provides forecasting that is based on the historical data and for externalities like weather conditions, customer profile, competition, regulatory and policy decisions.

• There is provision which determines network conditions based on the identification of the areas of high and low voltage. This will help in the expansion of the system to meet the forecasting of demand and reduce the technical loses which in turn simulate scenarios and prepare contingency plans to ensure system stability.

• There is no provision to identify the points in the distribution network which are prone to the congestion. This will help in the assisting the network planning and also expansion of network. This facility can also help in the cost benefit analysis of network expansion.