Chapter-I

Introduction

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1.1 Introduction

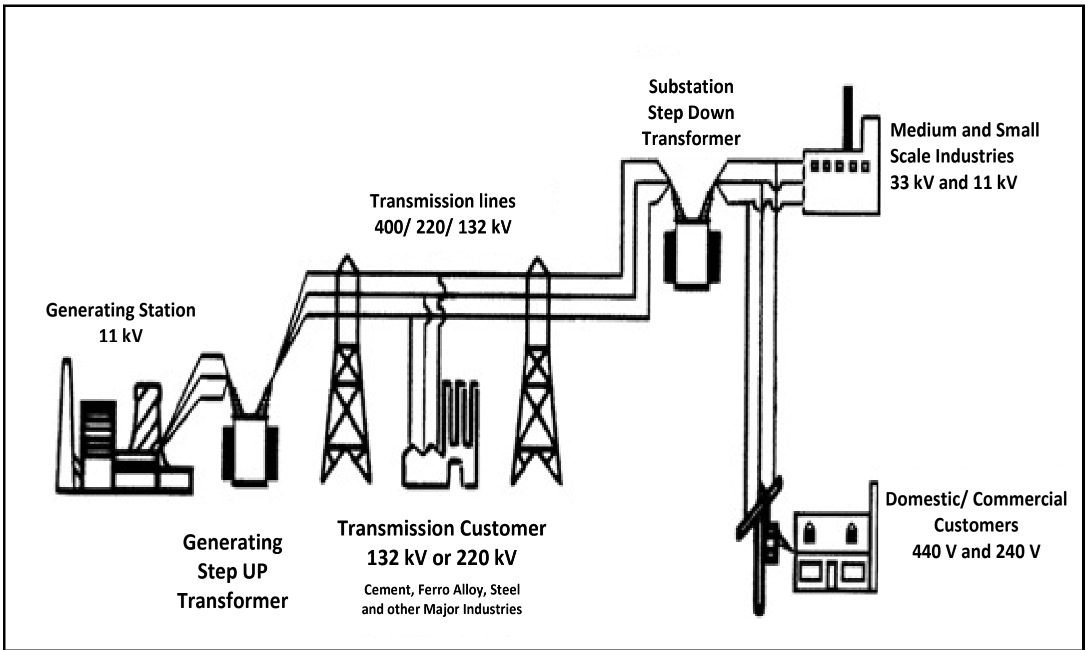
The Punjab State Electricity Board (Board) was a vertically integrated agency responsible for generation, transmission & distribution of electricity in the State. As part of power sector reforms, the Board was unbundled and two successor companies, the Punjab State Power Corporation Limited (PSPCL) and Punjab State Transmission Corporation Limited (PSTCL) were formed (16 April 2010) under the Companies Act, 1956. The activity of generation and distribution of power was entrusted to PSPCL (Company) while transmission of power was the responsibility of PSTCL.

The Management of the Company is vested in a Board of Directors (BoDs) consisting of 15 Directors including the Chairman & Managing Director (CMD). The CMD is the Chief Executive of the Company and is assisted by six Whole Time Directors in managing the day-to-day affairs of the Company and the remaining nine Directors are non-executive Directors.

1.2 Power distribution system

The power distribution system is the link between the power generation sources and consumers. The supply of power to consumers consists of three components - generation, transmission and distribution of power. A pictorial representation of the power supply system from generation of power to its distribution is as follows:

Chart 1.1: Power supply system



In the Company, the Director (Distribution) heads the distribution system (DS). The distribution system of the Company is divided into five zones, each headed by a Chief Engineer. The Zones further consist of various Operation Circles/ DS Divisions and subdivisions. As on March 2020, the Company had 21 Operation Circles, 104[1] DS Divisions and 475 Operation DS Sub-divisions:

Table 1.1: Table showing number of Operation Circles, DS Divisions and DS Sub-divisions under five distribution zones of the Company

Sl. No.	Name of Zone	Number of Operation Circles	Number of DS Operation Divisions	Number of DS Operation Sub-divisions
1.	Border	4	21	99
2.	Central	4	19	66
3.	North	4	20	103
4.	South	5	23	113
5.	West	4	21	94
	Total	**21**	**104**	**475**

Source: Data provided by the Company.

For efficient functioning of the distribution system, it must be ensured that there are minimum aggregate technical and commercial (AT&C[2]) losses in sub-transmission system[3] and distribution of the power. When energy is carried from the generation source to the consumer, some energy is lost in the network. The losses at 33/66 KV stage are termed as sub-transmission losses while those at 11 KV stage and below are termed as distribution losses. These losses are based on the difference between energy received (paid for) by the Distribution Company and energy billed to consumers. The percentage of losses to available power indicates the effectiveness of the distribution system.

1.3 Audit approach

The approach adopted for conducting the performance audit was as follows:

1.3.1 *Scope of Audit*

The performance audit, conducted during August 2020 to January 2021, covers the performance of the Punjab State Power Corporation Limited (Company) pre and post implementation of Ujwal Discom Assurance Yojana (UDAY) during the period from 2015-16 to 2019-20.

An Entry Conference for the performance audit was held in December 2020 with the Company. The scope, objectives and methodology adopted for the

[1] For the purpose of commercial accounting, these 104 operation DS divisions are considered as 98 divisions.

[2] AT&C Losses are the sum total of technical and commercial losses. Technical losses primarily take place due to transformation losses at transformer level, losses on distribution lines due to inherent resistance and poor power factor in electrical network. Commercial losses occur due to wrong metering, incorrect billing of power supplied and collection inefficiency.

[3] The part of the power transmission system that connects the high voltage substations (220 KV and above) to the distribution substations (generally 11 KV) is referred to as the sub-transmission system.

audit were discussed with the Management and Government. The Conference was attended by the Secretary (Power), Government of Punjab (GoP) and CMD of the Company.

An Exit Conference for the performance audit was held in April 2021 with the Company wherein the findings were discussed. This was attended by CMD, Director (Distribution) and Director (Finance) and Director (Generation) of the Company.

The activities relating to distribution of power by the Company were previously also reviewed and included in the Reports of the Comptroller and Auditor General of India on Public Sector Undertakings for the year's ended 31 March 2011, 31 March 2014 and 31 March 2015. Committee on Public Undertakings (COPU) discussed the audit observations and gave (March 2014/ March 2015/ March 2016/ March 2018) recommendations.

1.3.2 *Audit objectives*

The objectives of the performance audit were to ascertain whether:

- the directives pertaining to financial parameters envisaged in the UDAY Scheme and the Memorandum of Understanding (MoU) signed were adhered to and overall objective of financial turnaround of the Company was achieved; and

- the targeted operational improvements and outcomes were achieved as envisaged in the MoU and the Scheme.

1.3.3 *Coverage and Sampling*

Audit examination involved scrutiny of records in the head office and the selected distribution divisions of the Company. The distribution divisions were selected by adopting the criteria of the AT&C losses for sampling as follows:

A. Divisions having highest/lowest AT&C losses during 2019-20; and

B. Divisions which had significant reduction/increase in AT&C losses from 2015-16 to 2019-20.

Sampling Methodology

As per criteria A, six divisions were selected[4] of which three divisions had highest AT&C losses while three had lowest AT&C losses (based on data of 2019-20), as given in **Table 1.2**:

[4] Due to COVID-19 pandemic and consequent travel restrictions, the criteria for selection of DS Divisions falling within 100 Kilometres from Chandigarh city was also applied. Due to this, out of total five DS Zones of the Company, three DS Zones (Central zone, North zone and South zone) were considered for selection of DS Divisions.

Table 1.2: Distribution divisions selected as per Criteria A

Sl. No.	Zone	Circle	Division	AT&C losses as on 31st March 2020 (in *per cent*)
1.	Central	City West, Ludhiana	Agar Nagar, Ludhiana	12.70
2.	Central	Khanna	Gobindgarh	(-) 8.11[5]
3.	North	Nawanshahar	Garhshankar	40.37
4.	North	Nawanshahar	Banga	13.48
5.	South	Patiala	Patiala East	21.59
6.	South	Mohali	Mohali	0.26

Source: Data provided by the Company.

As per criteria B, six divisions were selected, excluding those already selected under criteria A, of which there was highest increase in AT&C losses in four divisions and highest decrease in AT&C losses in other two divisions, as follows:

Table 1.3: Distribution divisions selected as per Criteria B

Sl. No.	Zone	Circle	Division	AT&C losses (in *per cent*)	
				during 2015-16	during 2019-20
7.	Central	City East, Ludhiana	Focal Point, Ludhiana	0.40	6.52
8.	Central	City East, Ludhiana	Sunder Nagar, Ludhiana	12.20	5.31
9.	North	Nawanshahar	Nawanshahar	11.68	16.28
10.	South	Patiala	Patiala West	3.44	13.60
11.	South	Ropar	Anandpur Sahib	17.33	6.28
12.	Central	Khanna	Sirhind	7.54	9.53

Source: Data provided by the Company.

1.3.4 *Audit criteria*

The audit findings were benchmarked against the criteria sourced from:

- UDAY scheme guidelines (November 2015) issued by Ministry of Power, Government of India (MoP);
- Tripartite MoU signed (March 2016) amongst MoP, Government of Punjab and the Company;
- Electricity Act 2003; Electricity Supply Instructions Manual, 2011 and 2018; Punjab State Electricity Regulatory Commission (Electricity Supply code and related matters) Regulations 2014; and directions issued by Punjab State Electricity Regulatory Commission, Central Electricity Authority from time to time;
- Punjab State Electricity Regulatory Commission (Terms and Conditions for Determination of Generation, Transmission, Wheeling and Retail Supply Tariff) Regulations, 2014;

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[5] AT&C losses is a multiple of billing efficiency and collection efficiency. Due to collection of arrears, the collection efficiency exceeds 100 *per cent*. This results in minus AT&C losses.

- Punjab State Electricity Regulatory Commission (Conduct of Business) Regulations, 2005;
- Annual Revenue Requirement (ARR) filed by the Company and Tariff Orders issued by the Punjab State Electricity Regulatory Commission;
- Regulations, Manuals and instructions issued by the Company; and
- Directives as well as guidelines issued by the Government of India/ State Government.

1.3.5 *Audit methodology*

The following methodologies were used for conducting the performance audit:

- Scrutiny of minutes/agenda of meetings of the Board of Directors (BoDs), Whole Time Directors (WTDs) and BoDs committees formed by the Company;
- Examination of records of implementing units of UDAY scheme in Company;
- Collection of information on the basis of physical evidence, documents, questionnaires, surveys and direct observation and their analysis;
- Interaction with the Management.

1.4 UDAY Scheme

The Ministry of Power, Government of India (GoI) launched (20 November 2015) Ujwal Discom Assurance Yojana (UDAY) scheme for financial and operational turnaround of the State owned power distribution companies (DISCOMs) with support from their respective State Governments. The salient features of the Scheme were:

1. The State Government to take over 75 *per cent* of the debt of DISCOM's, outstanding as on 30 September 2015 over two years – 50 *per cent* in 2015-16 and 25 *per cent* in 2016-17.
2. The debt taken over to be converted into State Government grant during the period 2015-16 to 2017-18 with a relaxation of two years. In exceptional cases, where DISCOM require equity support, not more than 25 *per cent* of this grant to be given as equity.
3. Fifty *per cent* of DISCOM debt as on 30 September 2015 which will remain with the DISCOM by the end of 2015-16 to be converted by the Banks/Financial Institutions (FIs) into loans or bonds with interest rate not more than the banks base rate *plus* 0.10 *per cent*. Alternately, this debt to be fully or partly issued by the DISCOM as State guaranteed DISCOM bonds at the prevailing market rates which shall be equal to or less than banks base rate *plus* 0.10 *per cent*.
4. The participating States in the Scheme were required to undertake various targeted activities for improving the operational efficiencies of DISCOMs. The timeline prescribed for these targeted activities were

also required to be followed to ensure achievement of the targeted benefits.

Outcomes of operational improvements were to be measured through following indicators:

a) Reduction of AT&C loss to the level of 15[6] *per cent* in the year 2018-19 as per the loss reduction trajectory to be finalised by Ministry of Power (MoP) and States; and

b) Reduction in gap between Average Cost of Supply (ACS) and Average Revenue Realised (ARR) to zero by 2018-19 as finalised by MoP and States.

The Company had been under severe financial stress at the time the Scheme was contemplated for implementation. As on 30 September 2015, the Company had outstanding debts of ₹ 20,837.68 crore. The annual gap between ACS and ARR was ₹ 0.53 per unit (31 March 2016). The loss for the year 2015-16 (as per Annual Accounts) was ₹ 1,694.85 crore and AT&C losses were 15.90 *per cent* (31 March 2016).

To help improve the operational and financial efficiency of the Company, Government of Punjab (GoP) approved (25 February 2016) the adoption of UDAY scheme. Accordingly, a Memorandum of Understanding (MoU) amongst Ministry of Power, GoI, Government of Punjab (GoP) and the Company was signed (4 March 2016). In line with the tenets of the Scheme, the obligations of the parties to the MoU were:

Table 1.4: Obligations of parties to the tripartite MoU for UDAY scheme

Sl. No.	Description	Obligations
1.	Obligations of Ministry of Power, Government of India	• To facilitate GoP to take over ₹ 10,418.84 crore (50 *per cent* of the outstanding debt of ₹ 20,837.68 crore) of the Company, as on 30 September 2015 in the year 2015-16 and ₹ 5,209.42 crore (25 *per cent* of the outstanding debt) in the year 2016-17. • To facilitate Banks/Financial Institutions (FIs) to not to levy any prepayment charge on the Company's debt. Banks/FI's shall waive off any unpaid overdue interest and penal interest on the Company's debt and refund/adjust any such overdue/penal interest paid since 1 October 2013. • To facilitate increased supply of domestic coal to the Company through Ministry of Coal, GoI. • To allocate coal linkage to the State at notified price based on which the State will go for tariff-based bidding which will help it in getting cheaper power. • To ensure supply of 100 *per cent* crushed coal from Coal India Limited by 1 April 2016 and rationalisation of coal prices based on Gross Calorific Value.
2.	Obligations of Government of Punjab	• To take over outstanding debts of the Company to the extent of ₹ 15,628.26 crore (75 *per cent* of total debts of ₹ 20,837.68 crore as on 30 September 2015) in the years 2015-16 (50 *per cent*) and 2016-17 (25 *per cent*). The debts

6 As per MOU, it was 14 *per cent.*

		taken over would be transferred to the Company as a loan from 2015-16 to 2019-20 and thereafter as a mix of grant (₹ 11,728.26 crore, 75 *per cent* of ₹ 15,628.26 crore), and equity (₹ 3,900 crore, 25 *per cent* of ₹ 15,628.26 crore) as on 31 March 2020. Government of Punjab would guarantee repayment of principal and interest payment for the balance debt remaining with/Bonds issued by the Company. • To take over future losses of the Company in a graded[7] manner. • To pay the outstanding dues of the State Government Departments towards the Company for supply of electricity by March 2016. • To replace street lights with Light Emitting Diodes (LEDs) through Municipal Corporation/Nagar Nigam. • To improve the efficiency of State Generating Units and reduce the transmission losses from 3.80 *per cent* to 2.50 *per cent* by 2018-19. • To endeavour for ensuring appropriate tariff hikes. • To monitor the performance of the Company on monthly basis.
3.	Obligations of Punjab State Power Corporation Limited (Company)	• Conversion of 25 *per cent* of the Company's debts into loan/Bonds (by the Company) with interest not more than Banks base rate *plus* 0.1 *per cent*. • To reduce AT&C losses to 14 *per cent* by 2018-19. • To eliminate the gap between Average Cost of Supply (ACS) and Average Revenue Realised (ARR) per unit of power by 2018-19. • To implement 100 *per cent* metering at Distribution Transformer (DT) level by June 2017 except Agriculture Pumpset (AP) DTs, as per the Company's policy. • To ensure energy audit upto 11 KV level in rural areas by September 2016. • To undertake Feeder improvement program for network strengthening and optimisation, to be completed by March 2017. • To achieve physical feeder segregation by March 2017. • To install Smart Meters for 100 *per cent* consumers (other than AP consumers) consuming above 500 units per month by 31 December 2017 and consumers consuming above 200 units per month by 31 December 2019, based on cost benefit analysis. • To take measures for Demand Side Management and Energy Efficiency by providing LED bulbs to consumers under DELP[8].

[7] 2017-18: 5 *per cent* of the losses of 2016-17, 2018-19: 10 *per cent* of the losses of 2017-18, 2019-20: 25 *per cent* of the losses of 2018-19 and 2020-21: 50 *per cent* of the losses of 2019-20.

[8] DELP- Domestic Efficiency Lighting Programme (DELP) was announced by GoI on 5 January 2015, urging the people to use LED bulbs in place of incandescent bulbs, tube lights and CFL bulbs; being more efficient and economical. The DELP scheme was launched as "Unnat Jyoti by Affordable LEDs for All (UJALA)" on 1 May 2015. Under UJALA scheme, LED bulbs were to be distributed by the Electricity Distribution Company at subsidised rates to every electricity consumer with a metered connection.

		• To revise tariff quarterly particularly to offset increase in cost of fuel and to undertake appropriate measures for timely filing of Tariff Petition before Punjab State Electricity Regulatory Commission so that the Tariff Order may be issued for the next year as early as possible. • To initiate capacity building of employees to enhance technical, managerial and professional capabilities. • To set up Centralised Customer Call Center for timely resolution of complaints related to 'No Current' and other technical complaints, harassment by officials, reporting of theft and safety related complaints. • To monitor the performance of the Company at CMD level on a monthly basis. Monthly monitoring formats along with the targets shall be provided by the Company by March 2016.

Source: MoU signed amongst MoP, GoP and the Company.

The performance of the State owned Distribution Companies is reported on UDAY portal (website) of Ministry of Power, GOI, which provides information on national as well as State level performance on various efficiency parameters. It also provides State Health Card and the Memorandum of Understanding (MoU) signed with Government of India.

1.5 Renewable purchase obligations

As per Electricity Act, 2003, the State Regulatory Commissions are required to promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and specifying a percentage of the total requirement of electricity to be purchased from renewable sources. As per PSERC (Renewable Purchase Obligation and its compliance) Regulations, 2011 (RPO Regulations), the RPO can be complied with by the Company by purchasing electricity from renewable sources of energy or alternatively buying Renewable Energy Certificates (RECs) or a combination of both. In case the Company fails to comply with the obligation to procure the required percentage of electricity from renewable sources of energy or buy RECs, it is liable to pay penalty as may be decided under Section 142 of the Electricity Act, 2003.

As per UDAY scheme, the Company had to comply with the Renewable energy purchase obligation outstanding since 1 April 2012 within a period to be decided in consultation with MoP. However, no provision in this regard was included in the tripartite MoU signed amongst MoP, GoP and Company for implementation of UDAY scheme.

As on 1 April 2012, the Company had RPO shortfall of 252.62 MUs which accumulated to 480.10 MUs by 2019-20. The Company could not achieve the RPO targets fixed by the PSERC for 2015-20 (except for 2017-18 & 2018-19).

During 2015-16 to 2019-20, the Company, due to its failure in purchase of required renewable energy as per RPO, purchased RECs amounting to ₹ 104.59 crore.