

Power Sector Development in Haryana: Progress and Challenges

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Energy plays a vital role in the sustainable development an economy. Electricity is considered to be the most convenient form of energy. It is classified as a secondary resource of energy because anyone of the primary sources like coal, gas, petroleum, hydro-power, wind and solar energies may be used to produce electricity. Due to its adaptable nature, it is preferred at the consumer end. It is a basic infrastructure component for economic development. Being a scarce and valuable resource, great emphasis is laid on its optimal use. Given the characteristics of non-storable nature, continuous connection between suppliers and consumers and economies of scale, it was treated as a natural monopoly, all over the world.

In the per reforms period, about 30% of the plan expenditure was devoted to the power sector. Though there was significant increase in the generation capacity, however the physical and financial performance of the State Electricity Boards (SEBs) was not satisfactory. Apart from others, low Plant Load Factor (PLF), high Transmission and Distribution losses, irrational tariff structure were reported as major problems in the power sector in the pre-reforms period. In the Mid 1990s, power sector reforms were initiated to improve the technical and financial performance of the power utilities. The reforms initiatives include unbundling & corporatisation of State Electricity Boards (SEBs) and creation of independent regulatory commission at the central as well as state levels.

This research paper examines the outcomes of reform process and its impacts on financial performance of the power utilities in Haryana. In Haryana, unbundling of Haryana State Electricity Board (HSEB) was a major initiative undertaken under the Haryana Electricity Reforms Act 1997. Apart from others, an independent regulatory agency has been constituted at the state level to regulate the power sector. This paper is divided into four sections. Section I presents an overview of the power sector and the reform process initiated in the state. Key steps taken by the state government have been highlighted. Section II evaluates the impacts of reforms process on the physical & financial performance of power utilities in the state. Section III summaries the analysis and draws the conclusions and suggestions.

SECTION I: OVERVIEW OF THE POWER SECTOR

The state of Haryana can be categorized as one of the richest states in electricity availability. The Per capita availability in Haryana is recorded as one of the highest in the country. Planning Commission has estimated per capita consumption of power as 1628 Kwhs against the all India average, 884 units for the FY 2011-12. This increase in per capita consumption of power was a result of high budgetary support provided during the planning period. The state govt. provided

large shares of the budget to power sector in total expenditure in planning period .This is shown in the table 1.

Table 1 Percentage Share of Power Sector in Total Plan Expenditure

S. No	Particular	Total Plan Expenditure	Expenditure on Energy	% share of Energy
1.	4 th Five Year Plan (1967-74)	358.26	87.53	24.43
2.	5 TH Five Year Plan (1974-79)	677.34	260.01	38.39
3.	Annual Plan (1979-80)	202.95	56.40	27.79
4.	6 th Five Year Plan (1980-85)	15995.47	491.62	30.81
5.	7 th Five Year Plan (1985-90)	2510.64	639.03	25.45
6.	Annual Plan (1990-91)	615.02	155.92	25.35
7.	Annual Plan (199-92)	699.39	182.97	36.16
8.	8 th Five Year Plan (1992-97)	4889.89	1197.68	24.49
9.	9 th Five Year Plan (1997-2002)	11600.00	3305.00	28.49
10.	10 th Five Year Plan (2002-2007)	12979.64	1988.79	15.32
11.	11 th Five Year Plan (2007-2012)	35000.00	4687.00	13.39

Source: (i) Planning Commission: Annual Report on the Working of State Electricity Boards and ED, May.2002 (ii) The draft of the Tenth Five Year Plan (2002-07)

Table 1 Shows that the share of expenditure on energy has been very significant and above 25% in various plan periods up to 9th Five Year Plan. However, Expenditure in 10th FYP and 11th FYP was reported to be lower. After the initiation of reform process, private sector encouraged to make investment in the power sector. The other reason for lower support during the 10th and 11th plans is the direct grant provided by Ministry of Power under the Accelerated Power Development and Reforms Programme (APDRP) and Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY). It may be noted that the most of the expenditure allocated for energy was expended on the development of the power sector. The funds were invested in installing generation capacity and network expansion for transmission as well as distribution purposes. Thus, it shows that development of power sector was given a high priority during the different plans. Due to special attention of the state Plant Load factor in the state increased significantly.

In Haryana, the power sector reforms have been initiated as a part of overall power sector reform process initiated in the country under the supervision of World Bank. Haryana became the second state in the country that implemented the restructuring process at the state level.

However, enactment of Electricity Act 2003 was seen as a major milestone in the process of power sector reforms in the country.

In 1998 HSEB was split into four successor companies through the statutory transfer schemes.

- Haryana Power Generation Corporation Limited (HPGCL)
- Haryana Vidyut Prasaran Nigam Limited
- Uttar Haryana Bijli Vitran Nigam Limited (UHBVN)
- Dakshin Haryana Bijli Vitran Nigam Limited (DHBVN)

While Haryana Power Generation Corporation Limited (HPGCL) is responsible for power generation of power from the state owned power plants. Haryana Vidyut Prasaran Nigam Limited (HVPNL) takes care of the power transmission grid. State Load Dispatch Centre has also been establish to discharge the bulk supply function at the state level. For the distribution business, two companies (discoms), namely, Uttar Haryana Bijli Vitran Nigam Limited (UHBVN) and Dakshin Haryana Bijli Vitran Nigam Limited (DHBVN) have been incorporated to discharge the distribution functions in the northern and southern regions of the state respectively.

SECTION II: TECHNICAL & FINANCIAL PERFORMANCE

This section highlights the technical & financial performance of state of Haryana on the basis of some selected parameters such as plant outlay, Plant Load Factor (PLF), Auxiliary Consumption, Aggregate Technical and Commercial Losses (AT&C losses), cost recovery etc. On the basis of these performance parameters, a detailed analysis has been made for measuring the technical and financial of power utilities in the state.

Table 2. : Plant Load Factors of Thermal Plants in Haryana and All India Average

Year	All India	Haryana
2000-01	67.30	49.73
2001-02	69.00	60.68
2002-03	69.90	66.4
2003-04	72.10	74.9
2004-05	72.70	69.9
2005-06	74.82	67.0
2006-07	73.71	78.78
2007-08	76.8	75.01

2008-09	71.89	82.93
2009-10	71.20	83.04
2010-11	74.79	76.48
2011-12	73.43	74.06
2012-13	70.0	74

Sources: i) GOI, Planning Commission, Annual Report on the working of State Electricity Boards

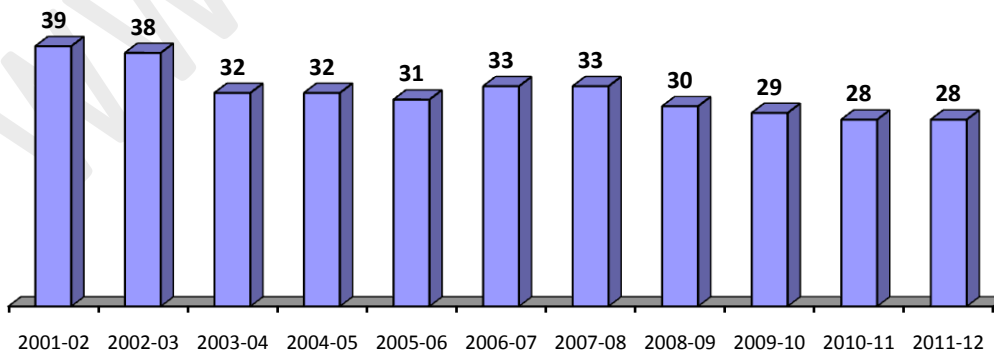
ii) CEA: General Electricity Statistics of various years

Table 2 brings out that PLF of Haryana thermal plants has been in lower position than all India average. PLF in Haryana during the period 2000-01 to 2012-13 shows that up to 2003-04, there was a consistent improvement in the performance as PLF increased from 49.73% in 2000-01 to 74.91% in 2003-04. Performance in the next two years deteriorated and it only recovered in 2006-07 (78.78%). Thereafter, the PLF was satisfactory and above the national average. In a state like Haryana which is an electricity deficit state, overall PLF should not be less than 85 per cent. So, there is a further scope for the state to improve its plant load factor.

TRANSMISSION AND DISTRIBUTION LOSSES (T&D LOSSES)

The level of Transmission and Distribution losses (T&D) is taken one of the important indicators used to measurement the energy efficiency. Energy losses consist of technical losses as well as commercial losses. Technical losses occur due to the inherent characteristics of the generation, transmission and distribution system whereas commercial losses are resulted mainly due to power theft. Other than the power pilferage, poor recovery rates and inaccurate billing are put under the category of commercial losses.

Figure 1: Transmission and Distribution Losses (in Percentage)



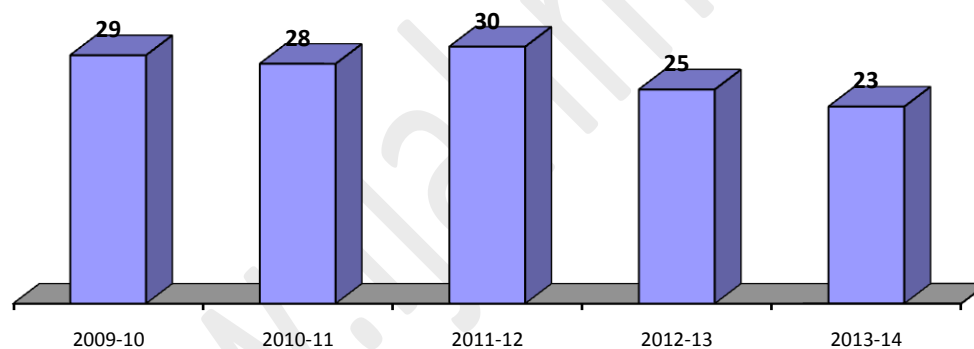
The Figure 1 presents total energy losses (technical & commercial) as a proportion of energy available for sale in the state Haryana. It is necessary to underline that the figures of T&D losses were reported to be very high in the state. The T&D losses reporting were reported to be as much as 40 percent T&D losses in 2000-01. Another important problem with the measurement of energy losses is the poor metering status at consumer ends especially the agriculture segment. Unless all the electricity supply including supply to agricultural sector is fully metered, authentic estimates of T&D losses are difficult to make or estimates will remark 'intelligent guesses'.

AGGREGATE TECHNICAL & COMMERCIAL LOSSES (AT&C)

After the initiation of power sector reforms, the reductions of AT&C losses have been the main focus area of the electricity distribution companies. The Ministry of Power is also focusing on the reduction of AT&C losses through various measures taken under the APDRP scheme.

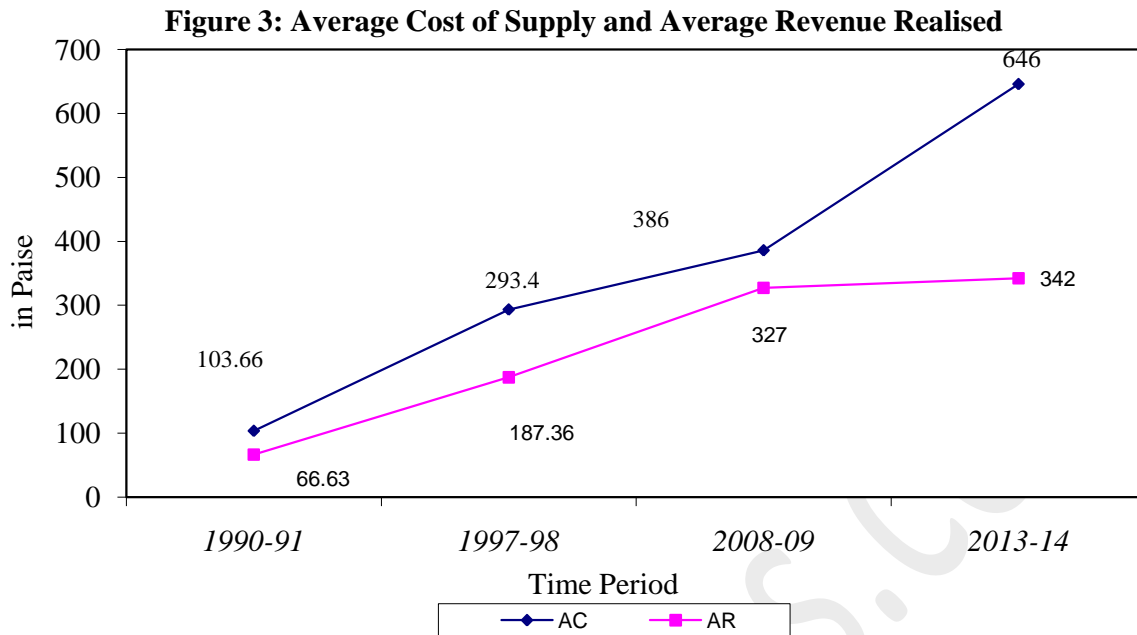
Haryana distribution companies have shown a good progress in reducing the commercial losses. AT&C losses are reported to have reduced 29% in 2009-10 to 23 % in 2013-14 in the state as given in Figure 2.

Figure 2: Aggregate Technical and Commercial Losses (in Percentage)



As it is given in the Figure 2 that AT&C has reduced in the recent years. Mainly it was a result of better recovery of electricity dues.

Despite some improvement in the operational performance the financial performance has remained unsatisfactory. It is mainly because of rapid increase in the cost of supplying power. The Figure 3 reveals that the average cost of supply increased from 103.66 paise per unit in 1990-91 to 386 paise per unit in 2008-09, which further went up to 642 paise per unit in 2013-14. The average revenue realized increased 66.63 paise per unit to 327 paise and 342 paise per unit during the corresponding periods.



It is clear from the Figure 3 that the gap between average cost of supply and average revenue realised has increase very rapidly. Non-recovery of the cost has implications for the financial position of the electricity companies and the state economy as a whole. This was mainly due to increase in the cost of power purchase, the gap between cost of supply and revenue realized and increased rapidly.

CONCLUSION AND RECOMMENDATIONS:

Power sector reforms were implemented in the state as a part of regulatory reforms. Haryana Electricity Regulatory Commission (HERC) was established in 1998, to regulate the power sector in the state. It has enforced various regulations in order to improve the technical and financial performance of the power utilities. There is also adequate progress in terms of installed capacity (only in the public sector).

The technical as well as financial performance reported by Haryana Power utilities was not satisfactory despite impressive expansion in the physical network. Lack of commercial outlook in operations resulted in poor technical and financial performance of the electricity companies. As a result, it suffered huge commercial losses and recorded negative rate of return on the capital employed in the business. The gap between the revenue realised and cost of supply has increased very rapidly. In order to improve the technical and financial performance, the followings suggestions are made:

- There is a need for the further improvement in the Plant Load factor. For this purpose regular maintenance of the plants should be undertaken.
- The Distribution companies should provide due attention to reduce the energy losses in the state.

- Power should be purchased on the merit order so that the cost of power purchase is reduced. The distribution company should sign long term contacts to get cheaper power from various sources in the stage.

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