

# POWER PLUS DISTRIBUTION



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## Power Distribution Sector in India

### Snapshot

Distribution and Retail Supply is the most critical link in the electricity market, which interfaces with the end-customers and provides revenue for the entire value chain. Indian electricity distribution caters to nearly 200 million consumers with a connected load of about 400 GW that places the country among the largest electricity consumer bases in the world. The consumers are served by around 73 distribution utilities – 13 electricity departments, 17 private distribution companies, 41 corporatised distribution companies and 2 State Electricity Boards. It owes to the fact of sustenance of other elements in the sector such as generation, transmission, equipment manufacturing; which depends on its operational performance and commercial viability. However, despite of its critical importance, generation segment has always been on the agenda of the government, in light of high energy deficit, necessitating need of huge capacity addition. Not long back, the Government of India had constituted a committee, headed by Mr. Deepak Parekh, erstwhile Chairman of IDFC, to study the electricity sector in India and suggest for improvements. The report, among other suggestions, remarked the following:

*"India's power sector is a leaking bucket; the holes deliberately crafted and the leaks carefully collected as economic rents by various stakeholders that control the system. The logical thing to do would be to fix the bucket rather than to persistently emphasize shortages of power and forever make exaggerated estimates of future demands for power. Most initiatives in the*

*power sector (IPPs and mega power projects) are nothing but ways of pouring more water into the bucket so that the consistency and quantity of leaks are assured..."*

Twenty years after reforms were introduced in the Indian electricity sector, the above remark still holds good. The 'bucket' in the above remark is the Indian electricity distribution sector, which consumes no matter how much is generated, without adequately compensating the producers of electricity for the same.

Lack of focus has resulted in poor operational and financial performance of the sector, thereby creating greater need of sector transformation, with high calls for private participation in terms of private franchising, public-private-partnership (ppp), equipment suppliers. As a result, tremendous opportunities lie on fore in the sector, for various stakeholders. Thus, this paper establishes the current scenario of power distribution franchisee in urban power distribution network.

## Operational & Financial Performance

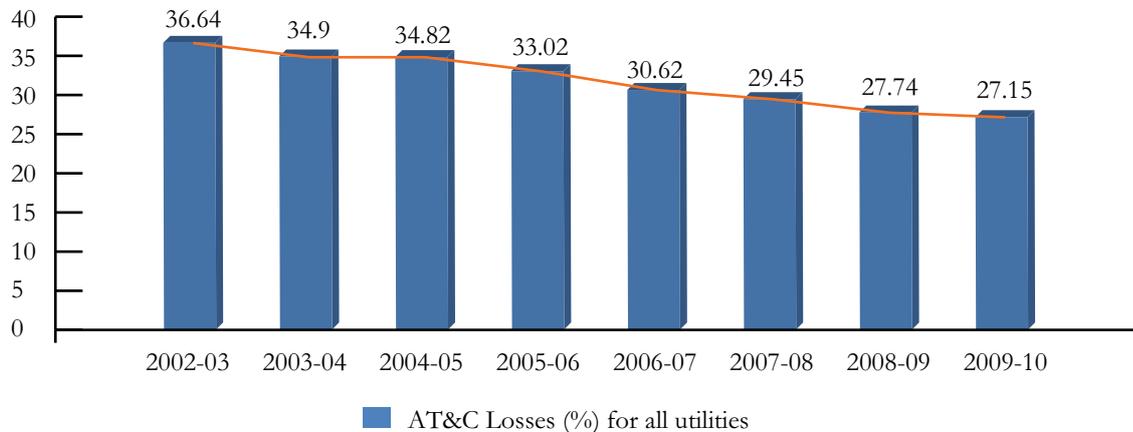
### AT&C Losses

The average AT&C losses in the country are hovering around 27% and these losses are higher on both technical and commercial heads. While higher technical losses are due to old and dilapidated conductors, longer lines serving distant and remote loads, old and inefficient distribution transformers and incorrect configuration leading to load imbalances, higher commercial losses are due to stealing of power, poor billing, low collection efficiency and faulty metering.

In the absence of a proper energy accounting and auditing system in place for most of the utilities, the actual

figures for the AT&C loss could be higher than what gets reported. Arresting the AT&C losses and reducing them

The aggregate book losses of these utilities increased from Rs.21,562 Crs. in the year 2008-09 to Rs.28,493



Source:PFC

year-on-year on a sustained pace will require disciplined approach by the utilities, mostly comprising behavioural changes to the functioning of the field personnel engaged in technical and commercial management of the distribution network and the customers respectively.

Crs. in 2009-10. However, in the year 2010-11, the losses decreased to Rs.26,921 Crs.

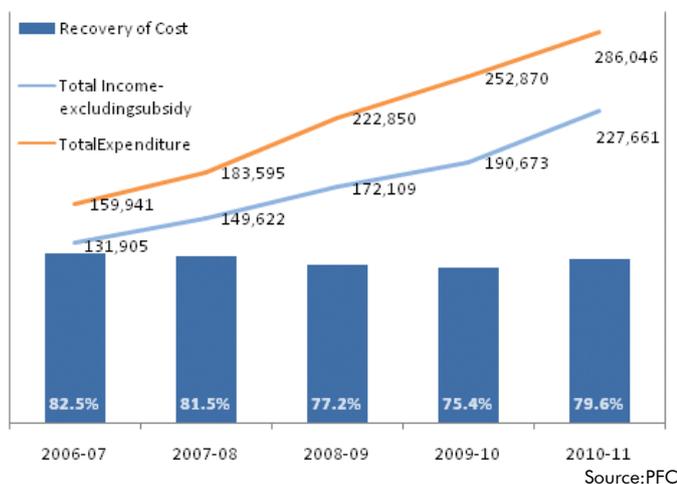
## Income, Expenditure and Profitability

The aggregate turnover (revenue from sale of power and other income but excluding subsidy booked) of the utilities reflected a YoY growth of 10.79% in the year 2009-10 and 19.40% in the year 2010-11. The aggregate expenditure of these utilities registered YoY growth of 13.47% in the year 2009-10 and 13.12% in 2010-11. The recovery of cost is shown in the figure given below:-

Profit before tax	Profit after tax	Profit without subsidy	Profit on subsidy received basis
(14,446)	(14,303)	(27,893)	(15,057)
(14,586)	(14,751)	(34,137)	(17,620)
(21,862)	(21,562)	(50,441)	(34,728)
(28,182)	(28,493)	(62,508)	(43,433)
(26,107)	(26,921)	(59,200)	(38,821)

Source:PFC

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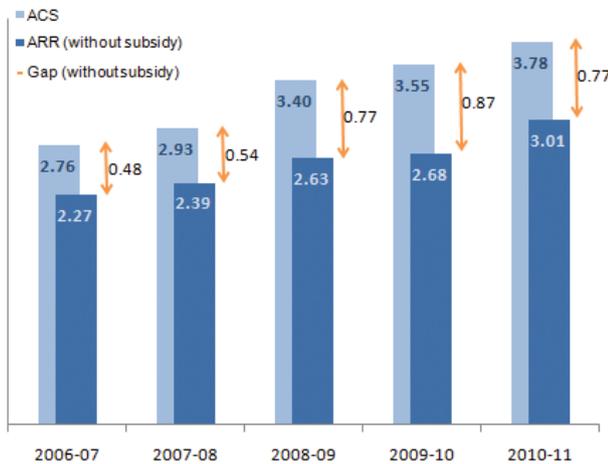
Source:PFC

## ARR-ACS gap

The gap (without subsidy) increased from Rs.0.48/kilowatt-hour (kwh) in 2006-07 to Rs.0.77/kwh in 2010-11.

The upward trajectory of gap per unit is explained by the fact that while power procurement cost and wage bills - together both these cost heads account for 82 per cent of the discoms costs - were increasing, lack of political will to revise tariffs resulted in growth rate of ACS outpacing the rate at which ARR increased. Between 2006-07 and 2010-11, the cost of procuring power and wage bills per unit increased by 10 per cent each, resulting in ACS growth of 9 per cent.

On the other hand, tariff hikes have been few and far between and insufficient to meet the revenue gap in most cases; in some states no tariff revision has been implemented for years, as evident from the ARR CAGR of only about 6 per cent between 2006-07 and 2010-11.



## Power Distribution Franchisee

### Definition

Distribution Franchisee is the latest form of public-private partnership in the distribution sector. The proviso to Section 14 of the Electricity Act 2003 states that:

“...in a case where a distribution licensee proposes to undertake distribution of electricity for a specified area within his area of supply through another person, that person shall not be required to obtain any separate license from the concerned State Commission and such Distribution licensee shall be responsible for distribution of electricity in his area of supply”.

This provision provides a conducive framework in which franchisee can operate in many ways in the distribution business. Electricity distribution franchisee is a classic example of public private participation (PPP) and going by the recent trends its acceptability in the private sector outweighs when compared to the overall privatization of distribution companies. Flexibility provided by the

franchisee model is key attraction, for instance, a franchisee arrangement can be limited to catering to small segment of distribution business such as managing a single feeder or distribution transformer, etc or taking care of all the distribution functions for a complete circle.

### Steps taken to Privatization

- During the pre-reform era (1991), Power sector was dominated by the state owned vertically integrated entities called State Electricity Boards (SEBs), responsible for all three functions viz. Generation, Transmission and Distribution of electricity.
- Deteriorating financial health of most of the SEBs and poor quality of supply and service led to reforms in the power sector
- While Generation segment was the first one to be opened up for private participation, the enactment of the Electricity Act 2003 provided for mandatory unbundling of the state electricity board into separate and independent generation, transmission and distribution companies.
- In the Distribution sector, most of the SEBs have already unbundled (except for Kerala and Jharkhand). The ownership still largely remains state owned. Private Sector Participation is limited to 15 private sector distribution licensees
  - 3 in Delhi (Privatization)
  - 4 in Orissa (Privatization)
  - 2 in Gujarat
  - 4 in Maharashtra
  - 1 in Uttar Pradesh
  - 1 in Jharkhand
  - 1 in Madhya Pradesh
  - 2 in West Bengal
- In addition to the above, new initiatives like introduction of various models of distribution franchisee have also been introduced in the distribution segment, both at the rural and urban level.

**Pre Reforms**  
CESC,  
AECL, BSES, NPC,  
TPC (existing  
private players)

**1999**  
Orissa  
Privatisation –  
First State

**2002**  
Delhi Privatisation  
– Distribution  
Utilities

**2007**  
Distribution  
Franchisee –  
Bhiwandi

**2010**  
Distribution  
Franchisee –  
Agra (operational)  
Kanpur (currently  
on hold)

**2011**  
Distribution  
Franchisee-  
Nagpur,  
Aurangabad,  
Jalgaon

## Types of PPP Models

Major models identified in distribution sector under private sector participation or PPP model are Management Contract Model, Franchise Model and Licensee Model. The allocation of responsibility in the three models is as under:

It is also apparent that distribution franchisee model is a trade-off between privatization benefits and SEB driven reforms which is also politically accepted and yields good result at moderate pace. The franchisee model is thus a right mix of progress, legislature and Acceptability.

Allocation of Responsibilities	Management Contract Model	Franchise Model	Private Licensee Model
Operation & Maintenance	Private	Private	Private
Capital Investment	Public	Private	Private
Commercial Risk	Public	Private	Private
Asset Ownership	Public	Public	Private
Duration	3-5 years	10-15 years	Indefinite
Reform Process	Slowest	Balanced	Fastest
Political Acceptance	Most	Balanced	Lowest

Source: PFC

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## Types of Franchisee Models

	Collection Based	Input Based	Revenue and O&M Based	Input Based and O&M	Input and Investment	Smart Grid Solution
<b>Responsibility of franchisee</b>	Metering/ Billing/ Collection	Metering, Billing and Collection	Metering, Billing, Collection and O&M	Metering, Billing, Collection, Input Supply and O&M	Metering, Billing, Collection, Input Supply, O&M and Capex	Smart Metering (LT & HT customers, tra nsformers and 11kV feeders), AB conductors and customer services
<b>Revenue</b>	Fixed fee	Fixed fee plus incentive	Fixed fee plus incentive	Right on revenue to franchisee. Utility received bulk supply charges	Right on revenue to franchisee. Utility received bulk supply charges	Franchisee would have to bid on percentage revenue sharing with the licensee for all 5 years
<b>Benefits</b>	Operational efficiency/ Collection efficiency	Operational and Collection efficiency	Operational and Collection efficiency, Reduction in manpower	Operational and Collection efficiency, Reduction in manpower and distribution losses	Operational, collection and technical efficiency, reduction in manpower and distribution losses, avoided investments	Reduction in commercial losses and improved customer services

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- RfS issued for 1GW of ground mounted solar projects
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## Win-Win Situation for Utility & Franchisee

Benefits to:	Description
Distribution Utility	<ul style="list-style-type: none"> <li>■ Reduction in commercial and distribution losses</li> <li>■ Better collection efficiency</li> <li>■ Improved customer satisfaction</li> <li>■ Ability to serve larger area</li> </ul>
Franchisee	<ul style="list-style-type: none"> <li>■ Possibility to earn high financial returns</li> <li>■ Customer lock in period</li> <li>■ Develop credentials to help in further bids</li> </ul>
Consumers	<ul style="list-style-type: none"> <li>■ Improvement in quality of services</li> <li>■ Improved power availability</li> </ul>

## Recent Deals

Several of the recent bidding rounds for Distribution Franchisee have not only witnessed increased participation

from the private sector players but also entry of several non-Power players into the sector

Year	Franchisee Area	Utility	Winning Bidder	Current Status
2009	Agra	Dakshinanchal Vidyut Vitran Nigam Limited (UP)	Torrent Power	Ongoing (Operations Taken over)
2009	Kanpur	Kanpur Electricity Supply Company Limited (UP)	Torrent Power	Delayed due to Agitation from KESCO employees
2010	Nagpur	Maharashtra State Electricity Distribution Company Ltd.	Spanco Group-Essel Group	Spanco started the Operations but Essel joined in by paying the dues worth Rs. 200 Cr for the area to MSEDCL
2010	Aurangabad	Maharashtra State Electricity Distribution Company Ltd.	GTL	Ongoing (Operations Taken over)
2010	Jalgaon	Maharashtra State Electricity Distribution Company Ltd.	Crompton Greaves	Ongoing (Operations Taken over)
2012	Gwalior	Madhya Pradesh Madhya Kshetra Vidyut Vitaran Co. Ltd.	Smart Wireless, Essel Group	Operation to be taken over soon
2012	Sagar	Madhya Pradesh Poorv Kshetra Vidyut Vitaran Co. Ltd.	Smart Wireless, Essel Group	Operation to be taken over soon
2012	Ujjain	Madhya Pradesh Paschim Kshetra Vidyut Vitaran Co. Ltd.	Smart Wireless, Essel Group	Operation to be taken over soon
2013	Muzaffarpur	North Bihar Power Distribution Company Limited.	Smart Wireless, Essel Group	Operation to be taken over soon
2013	Gaya	South Bihar Power Distribution Company Limited	Spanco Group	Operation to be taken over soon
2013	Bhagalpur	South Bihar Power Distribution Company Limited	SPML Infra	Operation to be taken over soon

## Key Issues

Sl.	PARAMETERS	REMARKS
1.	Standard bidding document for DF	Standardized selection process & terms of contracts in case of Generation and Transmission.
2.	Structuring of Franchisee area	Large enough (Energy input) with defined technical boundary Revenue potential/ sales mix/ Revenue-loss matrix/ LT loss level of the area;
3.	Contract period	Impact on depreciation/transfer value of assets
4.	Qualification criteria	Participation of consortium allowed in recent bid process; Optimizing Competence Vs. Competition
5.	Quality of base-line data	Key success factor for successful bid process and benefits that shall accrue to the discom/ franchisee
6.	Reserve price for bidderzzzzzzz tgg	Higher reserve price makes the proposition non-lucrative, may be left to market driven input rate;
7.	ABR	Process for periodic joint auditing to be a part of contractual obligations
8.	Power sourcing option for DF	Regulatory approval for additional Power purchase, FOR study recommends reliability charge
9.	Performance Improvement Target	Loss trajectory and related incentive/ penalty may lead to limited participation;
10.	Treatment of subsidy	Pass through of subsidy should be based on area profile/ viability of the project without subsidy;
11.	Capital expenditure	DF should have independence of capex decision in the initial years in long term contract;
12.	Role of regulator	Regulator should recognize DF/ Input rate approval/ Utility ARR and DF revenue;

## Way Forward

### Distribution Franchisee in present form needs serious corrections

- Especially in provisions related to regulatory oversight, specify guidelines and standard bidding documents for Distribution Franchisees, separately in Urban and Rural areas, supply guarantees by the licensee and asset ownership and transfer

### Distribution business model needs a complete rethink

- Unbundling of intrinsic services, viz. "Wires, Supply and Customer Services" would lead to value release
- Would allow for core specialization in all the activities
- Would also allow for Non-discriminatory Open Access to become a reality
- Addressing responsibility for emerging interventions – Smartgrid/ AMI, DSM initiatives

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## About Authors

**Shubham Gupta** is a Power Management Graduate from National Power Training Institute (NPTI), Faridabad with special interest and prior experience in Power Distribution Sector. During the course of his management studies he has worked with AF-Mercados EMI as a Research Intern and has also took up an assignment with Indian Smart Grid Forum (ISGF).



He has also worked with Torrent Power Ltd. as Engineer-Distribution at Agra Franchisee after completing his Electrical Engineering from Dr. KNMIET, Modinagar.

**Ankit Varshney** is an Electrical Engineer with 2 Yrs of Power Distribution Franchisee experience at Torrent Power's Agra Distribution Franchisee as an Executive-HV/EHV department. He has also seen the operational aspects of Franchisee model from close.



He is currently pursuing his Power Management from National Power Training Institute (NPTI), Faridabad. He has also worked with Infraline Energy as a Management Intern. There he made a report based on Risk Profiling of Distribution Utilities on the basis of financial and operational data.

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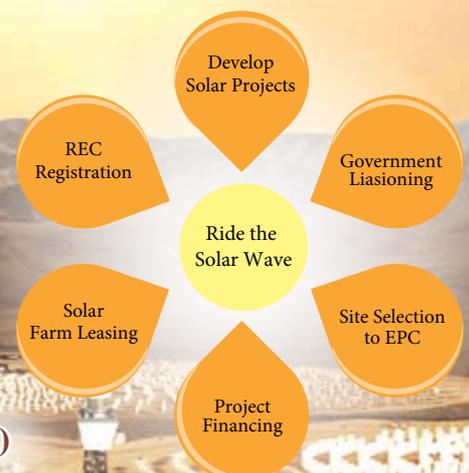
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