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Micro Distribution Franchisee" An Alternative to Combat Electrical Power Theft

Ishwar Khuspe[1] and M.V. Bhatkar[2]

[1]Electrical, A.C. Patil College of Engineering Navi Mumbai, India, Mumbai University
[2]Electrical, Jawahar Institute of Technology Nashik, India Pune University
E-mail: [1]ishwarkhuspe@gmail.com, [2]mvbhatkar@rediffmail.coAbstract

Abstract—*India had made huge addition in power generating capacity over 2.54 lakh MW . Similarly, it had boosted its transmission line network to evacuate electrical power. The overall success of power sectors is ultimately depends on the efficiency of distribution companies (DISCOMs, majority are state own utilities). The DISCOMs have sole responsibility of distribution of electrical power to consumers and collection of revenue in return. In India, Aggregate Transmission and Commercial (AT&C) losses are significant and recorded more than 55% at many places. The major chunk of AT &C losses is of commercial loss. It is actually a power theft. The bulk of electrical energy produced as much as 40% is stolen or pilfered.. During currently ended financial year 2013-14, total accrued losses of all DISCOMs might have crosses the figure of Rs. 2, 00,000 Crores. This is a clear indication of total failure of DISCOM sector on the front of revenue collection from consumers. To overcome the gloomy financial status, by reducing the AT&C losses, many DISCOMs franchised a part of their operational area to private sectors. Implementation of Distribution Franchisee (DF) model is not multiplied due to administrative and political constraints. In this paper the model suggested for distribution of electrical energy is "MICRO DISTRIBUTION FRANCHISEE" (MDF) under the governance of DISCOMs and well regulated by national and state RECs. The main motto of MDF is to completely eliminate power theft at consumer end*

1. INTRODUCTION

Prior to reform year 1991, various economist have referred to national governance of India as-

- The "license raj" and identified it as an obstacle to faster growth and development
- Restricted trades i.e. no trade liberalization
- Restricted Lower productivity of industrial sector
- Negative employment rate during(1981-1990)

The economic crises of second half of the decade 90's compelled the nation to undergo reform process. The statistical information on GDP growth [1] is given in the table 1. The figures of GDP shown in the table were not keeping pace with the other fast developing nations. So government had to take bold decisions to boost the rural and agriculture sector, The reforms in power sector were as important as any other sector. To meet the additional GDP growth, sufficient electric power had to be delivered. The increase in power generation capacity with a suitable mix of Hydro, Nuclear, Thermal and Renewable type was the first priority. The evacuation of generated power was the second one rather goes hand in hand with the power generation. The result of first generation reforms [2] were immediately seen from the following statistics. From the year 1992-93 to 1996-97 the average GDP growth was 6.7%. It clearly the indicates, that first generation reforms paid the desired results

Table 1: Year and Sector Wise GDP Growth of India

Year	Total GDP Growth	Agriculture	Industry	Services
1970-72 to 1980-81 (average)	3.2	2.0	4.0	7.2
1981-82 to 1990-91 (average)	5.7	3.8	7.0	6.7

Source: Government of India, Economic Survey

2. POWER SECTOR REFORMS

The need of reform, resulted, the government to establish the drastic changes in the infrastructure including electrical power sector. Briefly the reforms in power sector are illustrated in following sections.

2.1 Short Glimpse on Power Sector Reforms

The Installed Capacity in the year 1947 was just 1362 MW and Per Capita consumption was meager 15.6 units. Today, ie after 67 years, post-independence India has credited to achieve installed capacity (on 31/10/2014) 2.54 lakh MW. India's achievement of Per Capita Consumption electricity more than 800 units (by 2014) and targeted to cross 1000 units in a couple of years is to be appreciated. It is projected as 7 Lakh MW installed capacity and more than 1500 units consumption for the year 2025. India had achieved a remarkable 800 MW as Ultra Mega Power project (UMPP) along with 765 KV transmission voltage level. Recently it had acquired a facility to test ultra-high voltage (UHV) level of 1200 KV. Also it is

well equipped and has ability to install other recent technologies, such as, High Voltage D.C.(HVDC) transmission, Flexible A.C. Transmission System(FACTS), Gas Insulated Substation(GIS), monitoring of power equipment and transmission network online etc.

2.2 Retrospection of Power sector Reforms

As in [3], [4], according to various statistics available, India's power sector is characterized by inadequate and inefficient power supply. Consumers are still, confronted with frequent power cuts, and fluctuating voltages and frequencies. Besides, the remarkable progress by adopting reforms in the power sector, still India had deficit of 8.5% in energy supply during year 2010-11 and shortage of 10.3% in peak demand.

In addition, system losses are high throughout India's transmission and distribution (T&D) networks. In 1992 - 93, the total financial losses attributable to T&D losses stood at Rs. 4,600 crore ($920 million). These losses reached an estimated Rs. 26,000 crore, in 2001, more than US $5 billion per year. At the rate of this trend, the Montek Singh Ahluwalia Committee Report [5], on Securitization of SEB Loans has estimated that the financial losses of the sector will exceed Rs. 45,000 crore (US $9 billion) per year during the next three years i.e. up to year 2004. The cumulative Net Loss of the states in 2010-11 [6], is projected at Rs. 68,643 Cr. And further projections for 2014-15 at Rs. 1,16,089 Cr., assuming constant nominal tariff (2008) and without considering subsidy. In addition to these enormous direct losses, the indirect losses in terms of lost productivity and trade, sagging economic activity, rapidly shrinking of domestic and foreign investment in the sector, uneconomical and misallocated investments in captive power, and reduced income generation could be many-fold.

To get the rid of all the evils stated above, Government of India (GoI) decided to urge the state government to de-bundled their state electricity board. The Odisa state initiated the de-bundling process other states including Maharashtra followed the steps. The main intension to divide state electricity boards was to bring accountability, efficiency and competence. The debundling process created the single state owned electricity board into multi companies like GENCO, TRANSCO and DISCOM. Each, newly created company has to take responsibility of its own balance sheet. The reforms brought the PPP participation in generation and transmission sector results into success in expansion of power generation capacity and its evacuation. The ultimate revenue collection of GENCO and TRANSCO is depends on the payments made by DISCOMs on account of purchase and service to transmit electric power respectively. In turns, the total revenue should be collected by DISCOMs for the energy utilization by the consumers. DISCOMs had tried to collect the revenue from its consumers, but failed miserably. Its AT&C losses are pretty high. About three-fourth of AT&C losses were incurred over the last five years and these were funded mainly by borrowing from banks and financial institutions. Due to this, financial institutions are reluctant to extend the loans to state utilities even though guaranteed by state government. This further aggravates the burden of cash starved DISCOMs. In the year 2013-14 central government had extended the Rs. 1.9 Lakh Crores as debt recast package to improve the financial status of all DISCOMs.

2.3 Reduction of AT&C Losses

The AT&C loss is consist of two major components a) It is a technical loss of electrical energy due to heat generated when current flows through conductor and b) Commercial Loss. This commercial loss, is nothing but a theft/ pilferage by the registered and non -registered consumers. It is a tragedy that theft is termed as commercial loss.

One of the measures, adopted by few DISCOMs, (Example MSEDCL) to reduce commercial loss is to franchise their part of distribution area to private companies where losses are in higher percentage (greater than 20 %). The best success story is handing over of Bhiwandi town's electricity distribution to M/s Torrent Power by MSEDCL. MSEDCL has followed the model of Input Based Distribution Franchisee for cities Bhiwandi, Jalgaon and Aurngabad. Few other states are replicating this model in the respective region.

2.4 Measures by State and Central Governments

Any nation's progress is depends on the per capita consumption of electricity. To increase the electrical consumption, central government had implemented several schemes such as RGGVY and R-APDPRP. This helps the distribution sector to achieve sustainable economic level. Under such schemes before and during reform states are having financial assistance from central, to strengthen the electric network for better efficiency. Other financial institutions also extended the loans to uplift the power network. Despites such measures the downfall of DISCOMs is continued. GoI had ordered several committees to take review of the poor financial situation of state power distribution companies.

3. OUTCOMES OF VARIOUS COMMITTEES

The various committees submitted their reports to GoI, suggesting the possible solutions which will possibly transform the DISCOM sector into financial viability. Reports of few committees are listed below.

3.1. The High Level Panel

The High level Panel, headed by Shri V.K. Shunglu, former Comptroller & Auditor General, India, December, 2011 reported that, the total accrued loss of all DISCOMs together for financial year 2005 to 2010 crossed Rs. 1,79,000 crore before subsidy and Rs. 82,000 crore after subsidy. For the year 2009-10 alone, the financial loss of all distribution companies was Rs.57,000 crore before subsidy and about Rs.27,000 crore after subsidy. Though committee had discussed various issues

pertaining to overall power sector of India, following were the major recommendations [7].

- Power losses are primarily on account of poor managerial and operational practices of distribution companies compounded by irrational tariffs fixed by regulators.
- To compensate the losses, RECs should considered the enhancement of power tariff.
- The Panel has suggested that in areas where losses are high, a loss surcharge should be imposed over and above the basic tariff.
- Center should established Special Purpose Vehicle (SPV) owned by Reserve bank of India(RBI), SPV will purchase loans of bank and financial institutions which had taken by distribution companies.
- It was recommended to introduce input based franchise models in about 255 more towns, with cautious use of Section 108 of the Electricity Act, 2003, relating to issue of policy directions and proper energy accounting of all consumers.

3.2. P.M Appointed Panel

The Prime Minister of India, had appointed a panel under the chairmanship of Mr. B. K. Chaturvedi a member of Planning Commission, to eradicate the Rs. 82,000 Crores losses in the distribution utilities. It was recommended that, entire loss should be passed on to retail and industrial consumers in the process of reform.

4. REFORMS IN THE PERSPECTIVE OF CONSUMER

As per Indian Electricity Act 2003, National Electric Policy (NEP) 2005 and National Tariff Policy 2006, consumers only seek uninterrupted, quality electric power at competitive and reasonable tariff.

One of the philosophies which is adopted by a state and central REC to raise the tariff to cover up the AT&C losses is not understood by a common genuine honest consumer. He is rather baffled why honest customer is paying for others theft. Why he /she should pay the additional surcharge over basic tariff to compensate theft in consumers area. Is it not his /her right to get electrical power at cheaper rates without any fluctuations and interruption? Or he himself is not minding a increase in power tariff rate on account of compensating the commercial losses by DISCOMs. Even if honest customer is ready to pay escalated tariff (approved by REC), he is deprived of getting power 24 x 7. Still, six to ten hours of load shedding is implemented in the high AT&C loss region throughout the country. Deliberate load shedding is another tool used by DISCOMs to curb their commercial losses.

5. POWER DISTRIBUTION FRANCHISEE

To tackle the, the menace of the non-payment against the use of electrical energy by the consumer, DISCOMs had initialize the move to allocate the some part of distribution license area as appointing power distribution franchisee. Two models of power distribution franchisee are explained in short.

5.1. PPP and DF Model

Onward 2007, like MSEDCL, Uttar Pradesh and few other states tried the appointment of DF in some town/cities. Delhi state, had handed over entire North Delhi, as PPP, to M/s Tata Power, for distribution of electricity. To magnify the benefits of private investment, and to find out the corrective measures for the dwindling economy of distribution utilities, GoI, had set up a task force to study private participation in distribution of power.

According to Task Force on Private Participation in Power Distribution [8], some of salient features Public Private Partnership (PPP) and Distribution Franchisee (DF), model is listed in table 2.

Table 2: Features of Franchisee

PPP model	DF(Input Based) Model
Encompasses all functions and obligations relating to distribution of electricity in license area.	Under the surveillance of licensee, can functions and obligate the issues of distributing electricity.
Consistent with the Electricity Act which requires distribution to be licensed business would enable full regulatory oversight for ensuring consumer protection and competition.	Not exactly consistent with Electricity Act 2003, but Hon. Bombay High Court Nagpur Bench, 12 Feb. 2008, ruled that, appointment of DF in urban area is lawful.
Would provide requisite flexibility to the concessionaire to procure bulk power from the market at competitive prices.	Licensee have to provide 24 x7 power supply, or as per approved time period of the day.
Longer contract period i.e. 25 years / can be extended	Contract period of 15 years/ can be extended
Example : BSES(Reliance Infra) & TATA Power In Subarban Mumbai, Tata Power in North Delhi	Examples: Torrent Power, Bhiwandi,, Spanco Nagpur, CGL at Aurangabad, and Jalgaon

Table 3: Status of At&C Losses of Urban DF in Maharashtra(2011-12)

Distribution Franchisee	City	Targeted %	Actual %
Torrent	Bhiwandi	34.03	21.87
Spanco	Nagpur	23.13	32.43
GTL	Aurangabad	16.5	22.88
CGL	Jalgaon	27.49	31.20

5.2. Pros and Cons of PPP Model

The Task Force recommended that both the models are suitable for state utilities. Utilities have to decide over the selection of PPP or DF as per the state's socio economic constraints. The major pros and cons of both models are discussed below.

- Multiple Tariff for different PPPs in the same state is not desirable. It could bring social unrest.
- It may not be acceptable in the present situation where direct opposition towards privatisation exists.
- It is a complex model compared to DF and impractical to implement by states.
- It can bring huge capital investment from private corporates.
- It requires license to distribute electrical energy in a specified area.

5.3. Pros and Cons of DF Model

- It is not completely consistent with the Electricity Act 2003.
- It is not directly regulated by REC but through licensee, it can oblige the directives as per contract terms.
- DISCOMs existing employees can joined DF on deputation and voluntary basis.
- Its capital investment and performance standard can be predefined and monitored.
- It is the responsibility of licensee to provide continuous power to DF's area. It may cost DISCOMs.

5.4. Current Scenario of PPP and DF

The only PPP model, at New Delhi and DFs in few cities/town, are operating with the norms which are finalized by the state government. The Tata Power is doing well in New Delhi, whereas MSEDCL benefitted by awarding franchisee to M/s Torrent Power for Bhiwandi town. Other DFs which, starts their operations couple of years back like M/s Spanco at Nagpur, M/s GTL Aurangabad and M/s Crompton Greaves Ltd., at Jalgaon, could not bring down AT&C losses to expected level. table 3, indicates the AT&C losses [9], in few cities as a sample.

Non performing DFs for example M/s Spanco did not paid Rs. 200 Crores to MSEDCL in time. Even though MSEDCL, was, not dared to evoke Rs. 50 Crores bank guarantee against them. To avoid such situation MSEDCL with improved terms and condition floated the tenders repeatedly for Shil- Mumbra – Kausa region resulted zero response. Last year, the news was appeared in leading Daily newspaper, "Loksatta" (dated 21/12/2012), of non-payment of Rs. 4500 crores by MSEDCL to MAHAGENCO. Since last year frequent protest by power loom industry against very high tariff rate imposed by MSEDCL. Despite huge funding from center under APDRP, RGGVY and R-APDRP schemes, state utilities are not in a position to bring down AT&C losses, at par with the international standards. The question of quality service and quality power is still unanswered.

The adoption of PPP model will carries strong protest from political parties and employees of the state utilities. In our opinion the Input based Distribution Franchisee model can be extended to small area instead of one city or town limits. This will completely eradicate power theft. As the case of rural franchisee under current legal status Input based Franchisee at micro level is an answer. We called it as "**Micro Distribution Franchisee" (MDF).**

6. MICRO DISTRIBUTION FRANCHISEE

Solution to DFs at urban sector where AT&D losses are significant is "Micro Distribution Franchisee" (MDF). Under distribution franchise mechanism, the versions of DF are already functioning, such as Revenue collection, Revenue Franchisee – Input based, Input based Franchisee, Operation & maintenance Franchisee

and Electric co-operative society. Out of this model, Input based Franchisee as individual entrepreneurs with 7000-10000 consumers base is defined as Micro Distribution Franchisee in comparison with entre city or town franchisee. The true success of DF business is lies

in the principle of individual entrepreneur who always tries to run his /her business with profit motto. Hence, Instead of appointing one distribution franchisee for entire city/town, appointments of multiple MDF is the answer for reducing AT&C losses (mainly comprising of theft of electrical energy).

The Basic Parameters suggested by Forum of Regulators [10], of DF are considered as – 1) Franchisee Area 2) Selection of Franchisee Model 3) Qualification Criterion 4) Contract Structure 5) Handover and Implementation 6) Monitoring. On these parameters MDF is illustrated.

6.1. Franchisee Area

On the basis of success stories of rural distribution franchisee, MDF may have consumer base of around 7000 -10000 consumers. It can be extended to all consumers connected to 11 KV or 22 KV feeder where AT&C losses are higher than 20 %.

6.2. Franchisee Model

Amongst various model which are coherently operating in different parts of India, the Input based without capital investment (as per rural franchisee) is the viable option. The entire assets of distribution network will be owned by DISCOMs. This will certainly accepted by public and political parties who opposed direct privatization of public assets. Under the R-APDRP assistance can be seek from central government to improve distribution network for better efficiency.

6.3. Qualification Criterion

Instead of large single corporate as the case with DF, a consortium may be formed with local entrepreneurs by experienced, retired staff of distribution utilities. With expertise of of ex- personnel and profit motto of any individual entrepreneur definitely help to bring down the AT&C losses. In fact the philosophy of suggesting the MDF is that entire MDF area is well known to a local person.

6.4. Contract structure

The contract structure suggested by Forum of regulators on the Standardization of Distribution Franchisee can be implemented to MDF with suitable changes.

6.5. Hand over and Implementation

Dissatisfaction of existing employees of utilities is minimal as ex -personnel of DISCOMs are taking the care of MDF. Hand over and implementation will be easy compared to large and single DF. If any questions arise there will be minimal litigation as compared to the large single DF.

6.6. Monitoring

The monitoring of multiple MDF as being small in nature is rather easy compared to large consumer based DF. Even if single MDF fails to achieve reduction in targeted level of AT&C losses, it will be a small percentage as non-achiever as compared to large single non -achiever DF. The defaulter MDF's, termination will be simpler as political intervention is localized too. With the use of MIS, DISCOM will keep tight control over the functioning of MDF.

7. BENEFITS OF MDF

Following are the main benefits can be predicted and achieved with 100% success.

- Definite reduction in AT&C losses segment /local area wise.
- Possible to penalize only defaulter MDF (which has a very small number of consumers compared to large DF) is rather easy by terminating contract compared to big players.
- The corrective action may be immediate to suspend its MDF agreement and take over by state utility to maintain the supply to affected consumers.
- A political intervention may be localized and not a severe threat.
- The service to customer will be quick and prompt action to rectify the problem.
- A new small scale entrepreneurship will be created and generation of more employment.
- The collection efficiency will be 100% and commercial losses will be 0%.
- Licensee mainly State utilities will benefits and become financially strong.
- It will help to reduce tariff, ultimately, benefited to domestic and industrial consumers.
- Companies can compete at local, national and international level.
- More impetus to technical manpower related to electrical technology.
- In case of short supply, MDF can generate its own power (Specially from renewable sources)
- Financial Institutions/banks will eagerly provide loans to MDF with reduced risk of NPA.

Apart from above benefits, MDF's Local area office may be modeled as live ENERGY PARK which helps to increase energy conservation measures in the society. MDF will take joint measures to use renewable energy sources in the allotted distribution area. It can provide additional services like energy audit, quality audit, earthing audit, consultancy etc. The power quality of the supply provided by utility is always being a question. Today, many residential consumers uses high end sophisticated entertainment /domestic equipment. In commercial sector, use of computers and other billing devices are is a common practice. These high end products require clean, harmonic free, steady voltage at rated power frequency. To improve power quality further, MDF can provide power conditioners equipment (along with power factor correction) on demand at group of consumer's premises with additional pre-approved tariff /rent. As the power factor improves, technical loss due to heating of the conductor, reduces drastically. It may provide additional services of internet to increase profit via copper n/w. It will be a step further to implement, addressed based power switch and smart grid. In the town / city area where losses are more, DISCOM Staff/officers will greatly relieve

8. CONCLUSION

The Government of India is facilitating efficiency improvement and expanding distribution networks through its flagship programmes of R-APDRP1 and RGGVY2 respectively. However, the financial health of distribution utilities continues to remain critical for the overall success of power sector reforms.

From the various commission reports, institutional findings the ultimate success of power sector reforms only lies with the efficient distribution sector in rural and urban area. With success in Distribution franchisee in rural electrification and avoiding of Large size (Entire City) DF in urban. A suggested DF model as Micro Distribution Franchisee (MDF) is an only answer.

The financial institutions should extend the benefits of MSME loan status to MDF for better funding. With assistance from GoI, MSEDCL/DISCOMS can restructure its distribution network to suit the requirement of MDF on priority basis to curtail the AT&C losses completely. (Minimal Technical losses and zero commercial losses) and extends the true benefits of reforms to consumer by lowering tariff rate, which is the final essence of Electricity Act 2003.

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