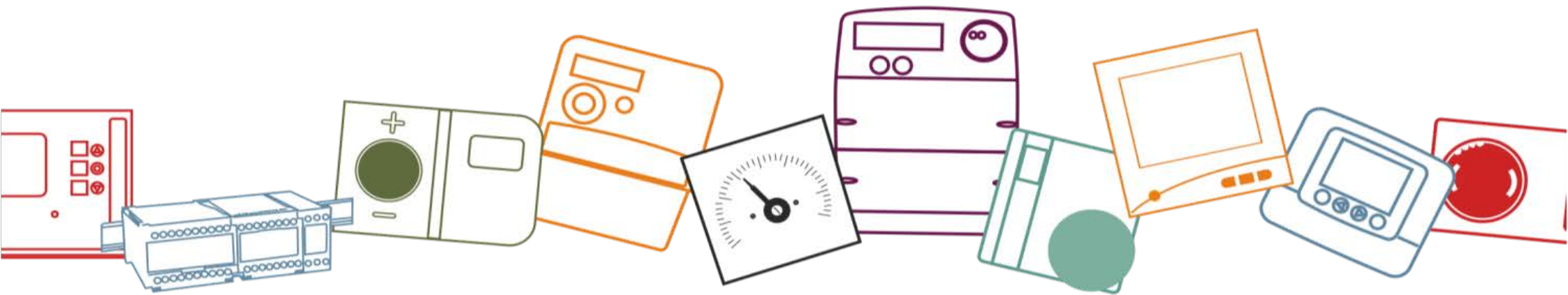


# *Distribution Reform – A Different Path*





# A Different Path

## The method

It is well established that till the power distribution sector improves, upstream investments will not lead to universal access to power supply.

Many years of investments funded by Government of India have failed to improve both the financial and physical performance. Centrally driven policy action is well intended but is rarely based on ground realities.

The financial state of this industry is such that unless urgent action is taken, the nation's banking sector too would need a huge bailout from taxpayers' money.

With a new government in place, there is clear political will to reform power distribution. It clearly recognises the role of 24x7 power supply in inclusive economic development.

Secure Meters would like to bring to it some new ideas to help shape public policy toward a quick reform of this sector.

A small think tank in Secure Meters has come up with a different proposal to improve the state of power distribution in India.

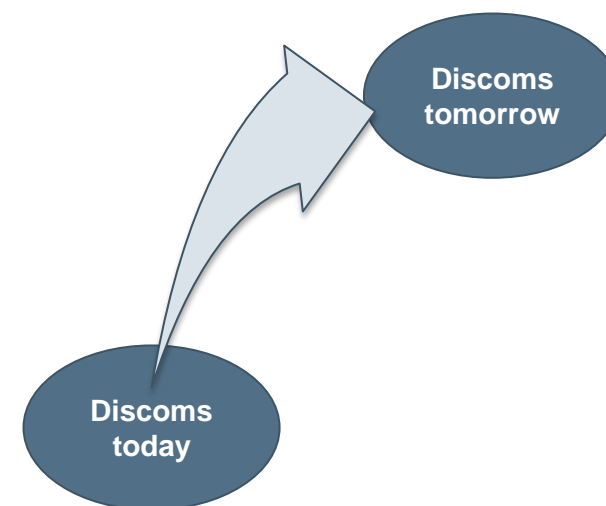
One state was studied in detail using publicly available information. Techniques learned from IIM Calcutta and Cambridge University and Secure Meters' own vast, ground level, experience with the power distribution sector were then applied to come with a roadmap for turning the sector's financial performance.

A general roadmap is presented here. Having based it on one state, it was tested on one other and the principles were found valid. The principles presented are salient and applicable in every situation. Plans for specific states would need different actions and timeline as variants on this theme.

This roadmap is supported by a lot of underlying detail and financial analysis. For obvious reasons this detail is not included here.

*Urgent distribution sector reforms are critical.*

*A roadmap to reform has been developed. Its principles can be applied to all states with appropriate modifications.*





# Key Goals

## *Choosing the right strategic goal is important*

Year on year losses by state discoms, with a few exceptions, is a common phenomenon. All discoms, even those that are not loss making, depend on state and central government funds for capital investments and working capital. Every state receives grants and loans from Government of India for network expansion or capacity enhancement.

Most states subsidise energy use by certain sections of society. This subsidy amount combined with funds to support the discoms' losses and the loans / grants as above are a heavy drain on the state treasury. The same funds, if otherwise spent on development would yield much bigger gains in a state's development.

In most discoms cash flows are always tight and uncertain. Cash flow depends heavily on the disbursement (or non-disbursement) of state subsidies for energy. For many discoms, this is a big IOU with state guarantees.

Every strategic roadmap must have a clear goal i.e. every strategy must achieve something.

After much analysis of alternative goals, the key goal chosen for this roadmap was achieving financial strength. Only a discom with a strong balance sheet can expand and grow without turning to the state's treasury for support. A "floatable balance sheet" was chosen as proxy measure for financial strength.

Below the key goal, this roadmap has two subsidiary goals.

- Provide 24x7x0.999 energy supply to all
- Provide hassle free service to all

An eight year time horizon was chosen for this roadmap. This choice was dictated by the current state of affairs (and therefore a judgment on the pace at which change could be made) and the physical size of the undertaking.

*The roadmaps were developed to achieve the key goal of discoms having a strong balance sheet.*

*This is the only way to eliminate the chronic financial dependence on the exchequer.*

**Financially  
Strong  
Discoms**

**24x7 power supply for all  
Hassle free service for all**



# Shift of focus

## Serve customers, not discoms

For some perverse reason, the power distribution industry, refers to its “customers” (people who pay for receiving a service) as “consumers” (people who use a service). Discoms view customers as irritants, out to cheat the system. Over the last 10-15 years this attitude has become endemic.

Having effectively alienated its customers (electric supply is nationally in the top three most corrupt state services in nearly every state) the industry has set itself on a downward spiral.

SERCs need to do more on customer service quality and must reach a state where poor customer service is penalised. Regulatory focus remains the “Annual Revenue Requirement” of discoms with not much attention to the linkage of proposed investments to improvements in customer service.

It is little known that on average 1/3<sup>rd</sup> of a discom balance sheet is supported by customers’ funds. In many cases customer liabilities exceed owners’ (government’s) funds.

All these years, state governments, central government and regulators have focused on the discom as the entity needing attention (e.g. the need to reduce AT&C loss has its direct focus on the discom and only indirectly on the customer).

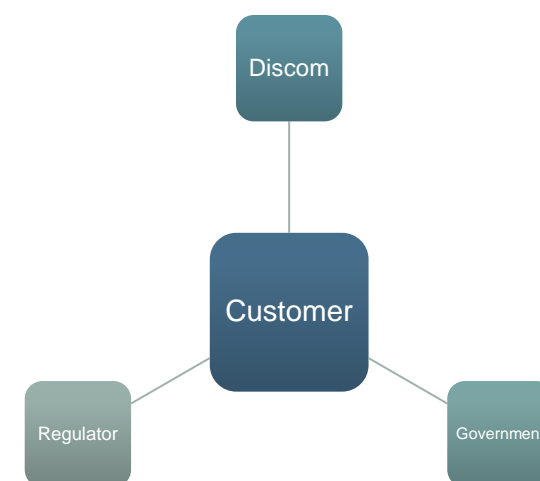
With an almost adversarial relationship with customers, a lot of time, energy and money is spent ‘protecting’ the discom from its customers. Most customers are honest and want to pay honestly for their energy use.

A shift in focus towards focusing on the customer, in our analysis, will achieve great results.

This shift in focus should not be lip service alone. Every decision made by or for a discom must first be assessed for whether it is good for and fair to the customer or not. Applying this test will change discom and government thinking substantially.

Treating customers fairly with a good quality service will also greatly reduce the costs incurred by discoms.

*Instead of focusing on the discom, the focus needs to be on **the customer**. Financial strength cannot be achieved good customer service go hand in hand. The former cannot be achieved without the latter.*





# Serving Customers

## What do customers really want?

The real expectations of customers from their discom come down to two things only:

- a hassle free service; and
- regular power supply

Customers routinely come in contact with a discom for only four reasons:

- When settling their bills
- When seeking a fault to be repaired
- When seeking a new connection
- When seeking redress for an accident

To the customer, each of these is an inconvenient process and when combined with graft / speed money payments, it becomes an unpleasant experience overall.

Convolutd discom processes, built on the assumption that every customer is a cheat, are opaque to the customer. These become fertile ground for the other form of corruption experienced by honest customers – extortion.

Simple processes supported by e-governance can be effectively applied, and quickly, to eliminate this unpleasantness and to give customers what they want. It will also improve the discom's finances.

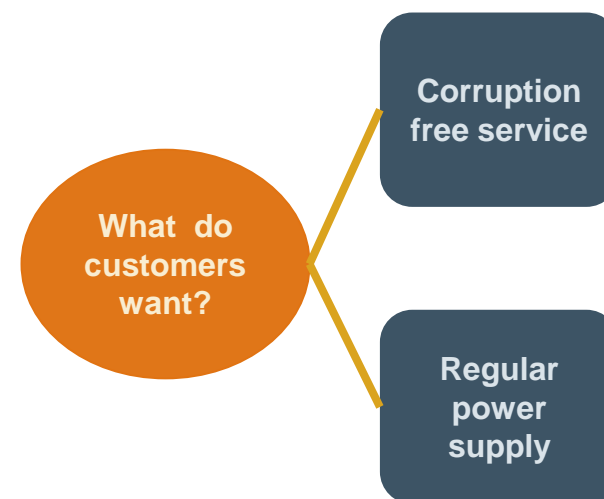
The 24x7 power supply to all customers is a challenge in the present chronic demand – supply scenario for energy. Clearly discoms have a major role to play in solving this problem.

The customer today however, suffers not just because of the demand – supply gap. Inability to pay, power purchase practices, load forecasting, slow restoration after faults and unannounced scheduled maintenance all contribute to the customers' woes. All these issues can be addressed and the supply situation improved in spite of the demand – supply gap.

All customers, whatever their size or use for electricity, have no source cheaper than grid power supply, usually delivered to them by their discom. If the average farmer paid `6 per kWh for electricity he would spend `210 per day compared to `570 per day for diesel, `380 per day for solar and `400 per day for animal power to irrigate his field. This argument works for industry and domestic customers equally. This alone is a powerful reason for customers to pay for the supply they receive.

*Customers only want a hassle free service and 24x7 power supply.*

*More than 90% of customers will happily pay the full & fair price for the energy they use.*





# Where do problems lie?

## *The core of the problem is people and processes*

Results are driven by people, processes and technology taken together. An analysis of these three dimensions was carried out to determine the most effective areas for intervention.

**Technology:** Discoms are not technology innovators, their business relies on innovations made by their suppliers. Discoms, however, need to be adept at using technology and making it work for the service of their customers. Failing to do so is not a fault of the technology, it is down to people and processes.

Over the last many years a number of well intended technology investments have been funded by the Government of India. The erstwhile APDRP scheme, replaced later by the R-APDRP scheme, was meant to be the to bring down AT&C losses. Both schemes have not achieved that objective. This is evidence that discoms' problems lie elsewhere.

Discoms deploy technology to the extent their people can use it. The issue is not the technology but the sociology (within the discom) around it which makes technology fail.

**Processes:** Nearly all public sector processes, including discoms', are based on public distrust and the need to justify actions many years later. That said, processes can still be simplified, but this will only work after a process for change is established.

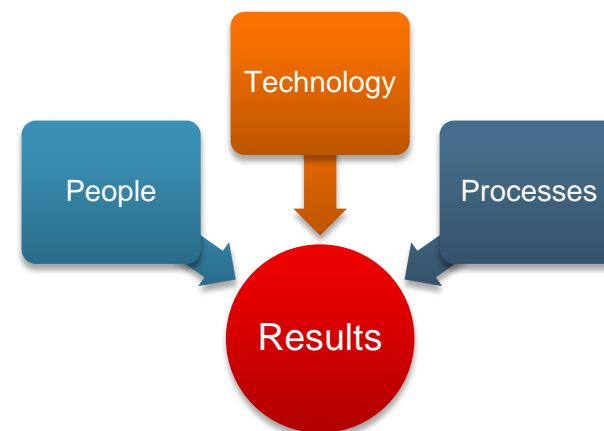
The key difference in the private sector is that neither of the above are reasons for processes to exist. Therefore processes are simpler.

**People:** This is the second most critical gap and it starts at the top.

Discom leadership is short term. An MD is rarely in the job long enough to experience the results of his / her decisions. The same applies to the top leadership levels.

Distribution systems engineering is the wise application of electrical technology deployed widely. Wisdom comes from experience and experience today, with notable exceptions, is rarely technical. There is an acute shortage of good distribution engineers in the country. There is a serious shortage of people in this area. Serious and concerted action on cadre building is needed.

*Discoms' problems lie, not in technology, but in people & processes. Big ticket technology investments are a waste. It is time to invest in and improve the process & people dimensions.*







# The Hypothesis

## *Will the proposed roadmap deliver?*

Based on the foregoing analysis, a roadmap with important financial & customer service milestones was developed. This was tested for deliverability of results and ease of implementation. Judgments on the time needed were exercised.

Each key customer milestone was then developed as a process that could be implemented. Technology needed to support that process was identified. The costs and benefits from such investments were quantified. These costs and benefits were then fed into the financial plans to assess impact on financial results.

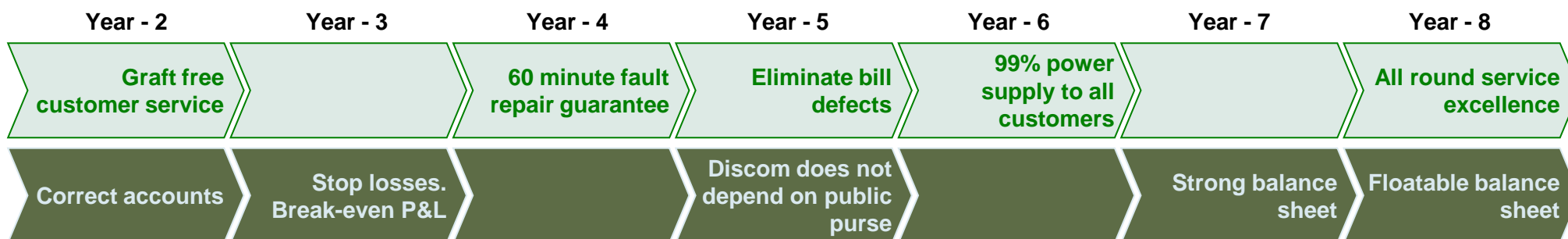
The process was iterated until the key goal of financially strong discoms was met.

The milestones are solidly linked to one another and 'cherry picking' a few will achieve the key goal.

**Customer results:** The two key customer requirements of corruption free service and regular power supply can be met in two and six years respectively. As these goals are achieved, the discom should have enough self-confidence to offer compensation to customers for failing its service levels.

**Financial results:** Given that the starting point in most cases is a big P&L loss and an insolvent balance sheet, some amount of financial engineering will be needed in the early years. Stopping losses to reach break even is a three year journey. Shedding dependence on the exchequer to finance fixed / working capital can be achieved in five years. By year seven the balance sheet can be strong enough for an IPO. An extra year of consistent performance will help push valuations.

*The eight year journey to financial strength and customer service excellence is realistic and achievable.*





# The Roadmap

## Four things to focus on

**Customer service:** High levels corruption faced by customers and lack of a service culture within discoms need to be overcome to achieve good customer service. Discoms realise that there is growing anger with the current state of affairs and this is the opportunity to improve. Excellence in customer service will ease the life of >90% of the customer base, those that want to pay for receiving a quality service (the remainder who cheat the system will also be dealt with fairly & effectively). Once the public starts to see positive and well meaning progress in service, perceptions will change.

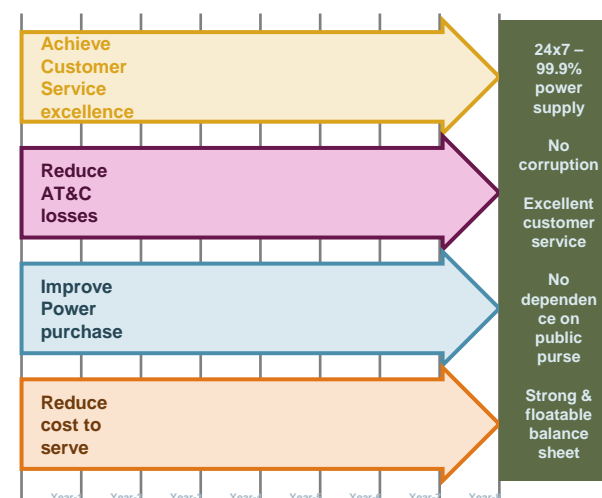
**Reduce AT&C losses:** Loss figures reported by discoms are unreliable. The politically sensitive agriculture segment is the sink where excess consumption is hidden. This is a double whammy because the state's subsidy bill (an IOU in many cases) also rises. Large capital investments in the name of reducing AT&C loss have seen losses come down on paper only. The very high levels of losses are an opportunity to get quick wins and improve the discoms' financial health.

**Improve power purchase:** Effective power purchase and avoidance of UI charges needs effective load forecasting. Energy supply – demand balance is dynamic. Most discoms operate to standing instructions for system operation which shed demand to a roster irrespective of a high availability situation. UI charges alone account for a few hundred crores a year to many discoms, easily saved with proper systems support. Improving power availability and optimising purchase cost by access to merchant plant through power exchanges is yet another big opportunity.

**Reduce cost to serve:** Operating expenses per customer served are a key indicator of discom productivity. Most discoms have operating expenses way in excess of private licensees. Improvement in this area requires a leadership team committed to improving productivity. Discoms incur a big cost on asset replacement and rework because of poor processes. These are, once again, low hanging fruit that will benefit the discoms' finances.

*Four main principles form the foundations of a healthy discom:*

- *customer service;*
- *loss reduction;*
- *better power purchase;*
- *low cost to serve*





# Customer Service Excellence



## *Transparent processes and consequences for failing service levels*

Great customer service reduces costs overall. The customer faces hassle & graft at four touch points with the discom when

- getting a new connection;
- seeking restoration of outages;
- settling bills; and
- dealing with safety related issues

Visible improvements in these four areas will change public perception about the discom. As service levels improve, it should be possible to compensate customers for failing to meet service standards. This will build real customer confidence.

The quickest 'win' is in new connections where a transparent process can ensure graft free service. A process that guarantees a 30 day turnaround for all types of connections up to 11kV supply (90 days for higher voltages) has been designed. New connections grow the discoms' sales hence should be handled with speed.

The next easiest is fault restoration. It is possible to guarantee a 30 minute restoration time in urban areas and a 60 minute time in rural areas.

Safety, like good customer service, reduces costs overall. Safety issues need the speediest attention. A project that starts with an audit to identify issues and ends in closure of all audit points is an upfront necessity. Systemic weaknesses need to be addressed with new engineering standards and staff training. Operation and maintenance processes that have accident prevention as their central goal are common and should be adopted. Involving the public in reporting of perceived electrical hazards will also help.

All three areas will benefit from the participation of private sector contractors. Effective long term contracts that reward achieving or exceeding of service levels are necessary.

Last but not least, is customer contact. It must be easy for customers to contact discoms by any means of their choice 24x7. Such contact must result in effective closure of the customer issue. This service supported by a suitable IT system that tracks issue closure will greatly improve public perception.

*The transformation to graft free customer service excellence is possible with a radical redesign of processes that makes progress & results visible to the customer.*

### **Graft free customer service covering:**

- **new connections**
  - **outage restoration**
  - **safety issues**
  - **billing & payments**
- with easy multi-media customers contact**



# Reduce AT&C losses

## *And enhance levels of customer service*

Historically reducing AT&C loss has been, in itself, a goal. It has rarely been achieved. Loss reduction has ignored customer convenience. A different tack, one that puts convenience to customers before loss reduction is more likely to work.

The proposed roadmap provides customer convenient solutions for all three components of AT&C loss viz. non-technical loss, technical loss and commercial loss.

There is no 'silver bullet' technical solution to high non-technical and commercial losses. The only 'silver bullet' is good management and staff accountability. Getting to fact based accountability needs technology support. Network metering data when combined with billing data provides an effective energy account. Energy accounting provides the facts on which staff performance can be judged.

Metering the network also helps in making decisions over network expansion and reinforcement. This will bring technical losses down and push reliability up, thus serving customers better.

A stratified approach to metering and billing will give customers confidence in the fairness of the discom charges. Thus

- High value customers need timely, accurate & verifiable bills. They need a different process.
- For domestic customers, prepayment metering backed with many methods to make payments (e.g. bank ATMs) access has proven to be both, convenient and cost effective.
- Farmers receive government subsidies. Bringing them to paying the full price with a prepayment system that delivers direct subsidy transfer to their accounts will solve two discom problems in one go.

Customers must develop a trust in prepayment metering to take to it. The key hurdle is retrospectively applied charges, e.g. fuel surcharge, under some regulatory tariff orders. Simple tariffs applied fairly will engender customer trust.

One expects the main resistance to these ideas from within the discoms and from other 'beneficiaries' of high losses.

*Holding people accountable for losses is the key to success. Metering customers and the network helps determine the facts against which individuals can be held to account.*

- **True losses are not known, they must be.**
- **Prepayment technology offers a big win**
- **Energy accounting will help staff accountability**
- **New engineering standards and O&M methods will reduce loss**



# Improve Power Purchase

## *Both UI and power trading are opportunities*

In most discoms, Unscheduled Interchange (UI) charges account for a few hundred crores expenditure paid to the state transco. Since this is an intra-state transaction, UI charges do not get the attention they deserve. Ultimately the state (and discom) lose this money which goes to support generators providing energy at the time.

Improvements in load forecasting, a critical skill for a discom, will lead to better day ahead schedules narrowing the UI energy. UI monitoring and targeting systems deployed at all interchange points but monitored centrally can achieve the real time dynamic balance needed to avoid UI charges. UI, from being a big cost centre can turn into a profit centre by a combination of better forecasting and an effective implementation policy.

Apart from state & central sector generation, discoms also have access to merchant power through power exchanges. The dynamic nature of the market (availability and prices) allows opportunities for discoms to manage peak demand shortages on the one hand and the overall cost of energy on the other.

The power trading market in India is in its nascent stages. With regular and reasonable scale trading operations by discoms, this market will also mature.

Power trading needs a very different skills and mentality not found in discoms. Long term partnerships with traders supported by some good recruitment can help discoms develop these skills quickly.

Power availability is also affected by cash flow and credit worthiness with gencos. Building a foundation with credit guarantees then supported by a good payment record will entitle the better paying discoms to command a price discount. Such actions need astute commercial planning and delivery, typically skills lacking within discoms.

*Power purchase & trade operations need a commercial flair and a stockbroker mentality. Effective buying can increase both gross margins and energy availability for a discom.*

## **Improve power purchasing & trading operations by:**

- **improve forecasts**
- **manage UI**
- **trade energy**



# Reduce cost to serve

## *Increasing productivity to international norms is a big opportunity*

“Cost to serve” being the total operating expenses (opex) by the number of customers served, is a normalised benchmark for the operating expenses of a discom. While other benchmarks relating opex to circuit length, customer density, load density etc. exist, ‘cost to serve’ is the best benchmark for a discom taking a journey down this roadmap.

Opex reduction in an organisation is generally very difficult because most expense heads tend to be fixed in nature and frequently they are inflation linked. Opex reduction also causes most organisation pain and therefore internal resistance.

Difficulty however, is not reason enough to ignore this important area of saving. This roadmap suggest a radical redesign and simplification of discom processes to serve customers better. This is the ideal time to develop processes along lean lines such that they deliver a high quality service.

Analysis of the P&L accounts of many discoms indicate that there are many opportunities to reduce costs. These opportunities are best discussed using an example:

Maintenance and replacement expenses are disproportionately high for the types of assets used by discoms. Transformers, cables, poles etc. all should a useful life of ~30 years, meters 20 years and IT assets 5 years. Most discoms are not able get the full life from these assets. Judging by the volume bought by discoms in the last five years, the entire metering fleet is being replaced every 4-6 years. The root cause for this expense is buying practices which do not factor the lifetime cost of a buying decision. Defective meters cause more serious damage by increasing AT&C loss and delaying collections. Were the true costs of the purchasing decision available to decision makers in a meaningful way, better buying decisions would result in much lower opex. The same is true for distribution transformers (DT). One discom reports >200 different makes of defective DT in their stores. A defective DT too is lost revenue.

*Opex reduction is achievable by providing a strong management team with accurate cost figures summarised in a meaningful way. The current opex base offers big opportunities for cost reduction.*

**Cost to serve is a normalised benchmark.**

**Reducing cost to serve directly contributes to the discoms’ financial health.**

# Government enablement



## *Good management is needed – public or private sector is not the debate*

**Long tenure leadership:** Leadership appointments are short term, sometimes as short as a few months. Discoms must have leaders who want to do the job and do it well and they must stay in post for a period of at least five years. Continuity of management is almost as important as the quality of management.

Each discom needs a leadership team of minimum four and preferably five persons to deliver this roadmap. A CEO, COO, CFO & CIO as a minimum with a CHRO as the fifth member. This team can be facilitated with professional development while on the job. IIMs and similar institutions can provide this support.

The shortage of skills in distribution engineering also needs to be addressed. This can be done at a national level by developing a cadre along the lines of the forest and railway services.

**Accountable leadership:** Having appointed the leadership, state governments must regularly review performance against clear quantitative objectives. Reviews should be fact based and perception based.

**Regulatory regime:** Though their action do not support it, SERCs are, on paper, independent. If independence within a state regulatory system is difficult, regional regulators may be better. Regulatory focus needs to be on customers and their needs. Setting service levels as customers see them rather than as discoms can achieve them and enforcing them with rewards or penalties may be a journey worth beginning.

**Other government enablers:** Once work on making this roadmap real starts, some form of financial engineering will be needed. If the new management team were not hamstrung by past performance, results will be quickly visible.

Implementing a scheme for direct benefits transfer for agriculture subsidies will allow the farmer to access as much energy he wants without adverse impact on the discoms' cash flow. It will benefit from a greatly reduced subsidy bill.

Lastly, enable the procurement of right quality material & services and building of long term partnerships with private suppliers.

*Government can enable discoms by providing them with*

- *long tenure leadership*
- *independent regulators*

*Direct benefit transfer for farmers will reduce the government subsidy bill.*



# Success Stories



## *People & processes supported by appropriate technology yields results*

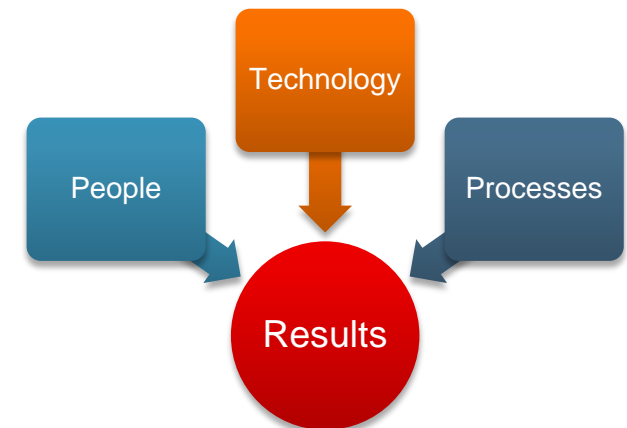
**West Bengal (public sector):** At a time when annual losses were ~`1,200 crores the state government appointed a chairman for a five year tenure. WBSEB invested APDRP funds in an energy accounting system with a single point responsibility. Using these energy accounting figures the Chairman carried out monthly reviews of the 10 best and 10 worst performing areas. WBSEB achieved ~`600 crores, a swing of ~`1,800 crores. The energy accounting service still continues but performance has dropped.

**Manipur (public sector):** This NE state has huge AT&C losses. The Chief Minister, determined to improve things, set the SEB to deploy pre-payment metering in the state. In their first trial area where losses were >70%, losses halved. Most important though, customers found prepayment the most convenient way to purchase electricity and developed a habit for paying for it.

**New Delhi (private sector licensee):** The three private companies serving Delhi post privatisation have set a world record. No other distribution utility in the world has brought down losses by so much so quickly. Having inherited DESU employees, all companies set about building a culture of customer service and attempted to carry these employees. Many made the transition and have helped the companies reduce losses. These companies have systematically deployed advanced technologies in distribution and metering to achieve these results.

**Bhiwandi (private franchisee):** Working in the communally sensitive and high loss area of Bhiwandi, Torrent chose a customer friendly approach to reduce losses. As they surveyed the distribution lines they discovered illegal connections to the network. At the same instant the connection was regularised and no questions were asked about back billing. The customer started to receive and pay. Running a new connection process alongside a network survey was an innovative process.

*The key recommendation in this roadmap have proved successful in other environments, both in public sector and private sector.*







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