Awareness and Action for Better Electricity Service an agenda for the community

Prayas Energy Group, Pune

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Awareness and Action for Better Electricity Service An agenda for the Community

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An agenda for the Community

आरोग्य, ऊर्जा, शिक्षण आणि पालकत्व या विषयातील विशेष प्रयत्न

Prayas Energy Group, Pune

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Electricity has become a basic amenity, probably next to health and education. Today it is impossible to manage the commercial, industrial and agricultural activities without electricity. At the time of independence, electricity had reached less than 1% of the villages. Today 81% of villages are electrified¹ and about 56% of households have electricity connections. Electricity has indeed helped to improve the quality of life and it plays a large role in the country's development. The government now has plans to electrify all households by 2009 and ensure consumption of at least one unit per household per day as a socially desirable minimum level by 2012.

In the 50 years after independence, there has been commendable growth in generation capacity, the number of electricity consumers, the number of agricultural pumps, and the length of the electricity network. The formation of State Electricity Boards in the 1950's marked the beginning of a period, when along with quantitative growth, the Indian electricity sector also achieved qualitative growth. This is reflected in the advanced technological capabilities and large number of highly skilled personnel available in the country. This remarkable growth was facilitated by four main policies, namely: (1) Centralised supply and grid expansion; (2) Large support from government budgets (in the form of long term, low interest loans); (3) Development of the sector based on indigenous resources and (4) Cross-subsidy (i.e. charging industrial and commercial consumers above the cost of supply, and charging agricultural and domestic consumers below the cost of supply).

However, this growth is only one side of the coin. There are problems too, in terms of limited access to electricity to households, high transmission & distribution losses, and high financial losses of State Electricity Boards. These problems started becoming significant from the 1980s. The root cause of these problems can be traced to functional failures of the same institutions and policies that created the growth. The failures in the governance of the sector were broadly on four fronts:

- Techno-economic: high losses, low efficiency, delays & cost escalations in project implementation
- Policy: shifts in the former policies of fuel choice and approach to self reliance, poor targeting of subsidy
- Planning: over emphasis on centralised supply approach, neglect of end use efficiency, conservation etc.
- Managerial: undue interference in the functioning of the State Electricity Boards by the State Government, corruption from the levels of linesmen to top management etc.

¹ This is as of 2007, as per the revised 2004 definition of village electrification. Village Panchayat has to certify that: power lines and transformers are available in the village and in Dalit Basti (if it exists); electricity connection is available at public places like schools, Panchayat office etc; at least 10% of the households are electrified.

Gradually, by the 1990s, these failures developed into a crisis-like situation, pushing the electricity sector to the brink of collapse.

It was at this time that structural changes, such as an increased role of the private sector and introduction of independent regulatory commissions, were initiated, apparently to solve the crisis. At the core of these reforms is the policy shift that sees electricity as a commodity that can be bought and sold in the market, unlike its traditional role as a development input. Private participation, the increased role of market forces and the reduced role of the State are key aspects of this policy shift. Considerations, like the power sector acting as a State instrument of public policy, or emphasis on self-reliance in fuel, technology, have become less important. Subsidies for poor consumers (as cross subsidy from rich consumers and directly through the state budget support) are being questioned. As part of the structural change, many new players have come up in place of one big electricity board. In place of direct regulation of the sector by the government, regulation by an independent Regulatory Commission has been introduced. The Electricity Act 2003, enacted by the Central Government consolidates this approach.

Some of the changes in the electricity sector have resulted in improvements whereas some have worsened the situation. There has been an increased and direct consumer orientation in the Acts and Policies. Regulatory Commissions, Consumer Grievance Forums etc. have made it easier for consumers to understand utility working and pursue their complaints. On the other hand, high emphasis on making utility operation profitable has resulted in the neglect of power supply to the poor and low attention to environmental sustainability. The sector operation has become more complex with many more players like distribution companies, private generating companies, power traders, franchisees, grievance forums and Regulatory Commissions.

With recurring power cuts and worsening quality of supply, the situation today is not far from crisis - Over half of the rural households do not have access to electricity. Additionally, maybe around a quarter of the rural population does not get electricity when they want it, due to heavy load shedding in many states. Hence, probably close to three fourths of the rural population gets very limited benefits from electricity. Agricultural consumers get highly subsidised (or at times free) electricity supply. But the duration and reliability of supply are rapidly decreasing.

What does all this mean to the people who deal with the local distribution company for new connections, supply problems or billing errors? What does all this mean to community leaders and activists who work with the poor and want to ensure reliable electricity supply to them?

This booklet provides a framework for intervention towards improving electricity service to the poor. It gives an outline of the issues that the poor face and explains the key provisions in the Electricity Act 2003, National Policies and State Regulatory systems that could be used to address these issues. It hopes to support the efforts of leaders of mass organizations working with the poor, and equip them to address their problems in the electricity sector. It includes tackling the immediate issues faced by the poor as consumers (high bills, delay in getting connections, harassment etc) as well as the broad issues of the sector that are important to them as citizens. This booklet also hopes to make the utility staff, regulatory staff, sector analysts and policy makers sensitive to the issues in the electricity sector that affect the poor.

However, organisations working directly on service delivery issues affecting the poor often come across procedural problems, which are not covered in this booklet. The "Citizens' Guide on Electricity Regulations" prepared by Prayas is a step by step guide helping consumers to understand the procedures laid down by electricity companies or the Electricity Regulatory Commissions (e.g. the forms required for new connections, actual charges payable etc.). Although both these booklets together attempt to address many issues affecting small consumers, these are not sufficient to gain a comprehensive picture of the power sector towards participating in the decision-making and regulatory processes. "Know your Power - a Citizens' Primer on the Electricity Sector", another Prayas publication meets this requirement to a large extent.

The organisation of this booklet is briefly outlined here and each issue is introduced in the following chapters. Chapter 2 gives an overview of the issues in the electricity sector which impact the poor. These are covered under 3 broad heads: who gets electricity (access), is electricity affordable, and quality of supply of electricity. Chapter 3, 4 and 5 elaborate on these and give ideas of addressing issues of the poor under the existing setup. At every stage, examples are taken from the current context to illustrate points. The last chapter addresses the sector governance issues by discussing the roles of utility, regulatory institutions and the government.

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-Z-Electricity services to the poor: An overview

The government of India has recognised electricity as a "basic human need" in its National Electricity Policy. Electricity is a key to the country's development and is one of the more essential inputs to achieve rural empowerment. From this perspective, it is important to ensure affordable and reliable access to electricity to all sections of the society, especially the poor. In order to achieve this, it is necessary to understand the problems faced by the poor in enjoying the benefits of electricity and also the obstacles faced by utilities in ensuring reliable service delivery of electricity. This chapter presents a brief overview of electricity service related problems faced by the rural and urban poor.

Who are the poor?

Before looking into the problems, it is important to identify the poor, so that the nature and scale of the challenge in providing reliable and affordable electricity to them can be understood. In addition, this will also ensure that benefits are well targeted, i.e. they reach the people who need them.

For the purpose of service provision at affordable and subsidized rates, a poverty line is usually used by governments and other agencies. In the past, poverty lines were based on income levels and expenditure on food. There has been an improvement in this method since 1997. The current method uses surveys considering different attributes of a household, such as: clothes owned; the presence of a toilet in the home; occupation of the employed person, etc. Based on the points obtained in the survey, a household is classified as "Below Poverty Line" (BPL) or "Above Poverty Line" (APL).

In the power sector, these classifications regarding poverty levels are often used while giving new connections and fixing tariffs. For example, the rural electrification programmes initiated by the Central Government attempt to provide new connections to BPL households which currently have no access to electricity. Some state governments also use other categorizations - In Maharashtra for example, there is a provision of lower connection charges for households belonging to Scheduled Castes (SC) and Scheduled Tribes (ST). Government programmes to provide connections to poor households have been in place since 1974 when the Government's 'Minimum Needs Programme' identified rural electrification as a basic need. Many schemes such as the 'Kutir Jyoti Yojana' (1988) were initiated to provide access to the rural poor. Most of these schemes have now been integrated under the Rajiv Gandhi Grameen Vidyutikaran Yojana since 2005.

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The National Electricity Policy as well as the National Tariff Policy suggest subsidized tariff for BPL consumers. However, incorporating data from the Government's BPL database into the utility's consumer database to identify poor consumers is a difficult task for the utilities. The Electricity Act and National Policies, allow the utility to make and use their own categories to target subsidies based on the consumer's electricity consumption. The guideline of "Lifeline Consumption of 1 unit/day by all households by 2012", has allowed utilities to set a very low consumption threshold for subsidised tariff. The underlying assumption is that the poor consume less electricity because they have fewer appliances in their homes. For example in Maharashtra, those who consume less than 30 units of electricity per month are considered as BPL consumers. The tariff for such consumers is subsidized and is significantly lower than the tariff for the others. 23% of all households in Maharashtra do not have access to electricity (Census 2001). And according to the tariff order given by the Maharashtra Electricity Regulatory Commission (2005), 16% of the consumers consume less than 30 units per month and thus get electricity supply at highly subsidized rates.

A consumption of 30 units per month implies the use of two 60 Watt bulbs in the house operating daily for 8 hours. This might be a good criterion to identify the rural poor, but the urban poor usually have more appliances in the house and thus they consume more electricity. Many of them fall in the 31 to 100 units per month group and pay a higher rate for electricity. For some utilities providing electricity in cities however the Regulatory Commissions have prepared more liberal norms for categorizing consumers. In Mumbai and Delhi, households consuming less than 100 units/month pay a lower tariff.

Although poor domestic consumers form a large section of electricity users in India, attention should also be given to non-domestic users of electricity. To use electricity as a tool for development, a focus on marginal farmers, cottage industries, small commercial establishments etc. is necessary. Some states have separate categories for agricultural consumers, wherein small and marginal farmers or farmers in drought prone areas or farmers in areas with lower water tables etc. get electricity at lower tariffs. These efforts look beyond the basic minimum uses of electricity for domestic purposes and recognize it as an "enabling" agent for development.

Having broadly discussed these categories, it should be remembered that many poor people get excluded from the intended subsidy even with the currently used definitions due to many implementation problems. An understanding of the importance of electricity to the poor and the problems faced by them at various stages in the power sector is necessary to help reduce exclusion and address the institutional blocks that prevent better service delivery.

Why is electricity important to the poor?

Why is electricity important to the poor? To understand this, let us examine the use of electricity in three areas: (1) by small households, (2) for livelihood activities (like agriculture, small shops etc.) and (3) providing community services (like drinking water, health etc.).

Small households

Lighting, fans, TV, radio and small gadgets are the major areas of electricity use by small households. Lighting is the most important of these. In India, around 66% of all poor rural households use kerosene for lighting. This can be nearly 5 times as expensive as electricity. No wonder, as a percentage of total expenditure, an average poor household spends more on lighting than a non-poor household. Lack of access to electricity leads the poor to spend more money to achieve a poorer quality of lighting! It is also clear that the availability of electricity for all these uses improves the household environment & hygiene, helps in studies, increases the productive hours (of weavers, tailors etc) and provides entertainment & news.

Livelihood activities

These include use of electricity at facilities owned by the poor as well as small enterprises which typically employ the poor.

Pumping water for irrigation by marginal farmers (with pump-sets of 3 horse power or less, operating for less than 400 hours a year) is the most important in this. Small shops - tailoring, grinding, provisions, vegetables- and cottage activities (which consume less than 100 units per month) are other examples where the poor own the facility and affordable, good quality electricity supply is crucial for viable operation. Small enterprises which provide employment to poor include flour grinding mills, electrical welding centres, repair shops, power looms, small printing presses and agro/food processing units.

In all these cases, alternatives to electricity (kerosene or diesel based generation) are 2-3 times costlier making the activity unviable. Bad quality of electricity supply results in loss of crop, production and employment. The poor often have no insurance cover to bear such shocks.

Community services

Affordable and good quality electricity supply is crucial for many agencies which provide community services, used typically by the poor. Local bodies providing drinking water, lift irrigation schemes, street lighting and public health centres come under this category. If electricity is not available, alternatives to get such services are costly. While the rich can afford the costly alternatives, the poor are forced to forego these.

From all the three areas it is clear that affordable and good quality supply of electricity to the poor is politically and socially desirable. By catalysing better education, health and income generation, it also serves the long term economic interests of the country. Availability of good quality electricity in rural areas could also reduce migration to urban centers.

What are the issues with electricity and the poor?

The poor face many problems with service delivery in all sectors - electricity, water, transport, sanitation, health and education. Various studies have

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indicated that the delivery of even the basic services to the poor in India is either in a bad state, is getting worse or has totally failed (e.g. PAC study on 'The State of Public Services in India').

Problems faced by the poor face in the electricity sector are many. Listing all the issues, understanding, prioritising, appreciating the linkages, analysing the causes and arriving at possible solutions are challenging tasks. In order to develop a framework to undertake this activity, we suggest a broad classification of electricity sector issues affecting the poor. This classification is shown in the form of a flowchart.



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Electricity services to the poor: An overview

As seen in the flowchart, access to electricity depends on many issues. Can the electricity lines be extended to provide connection? If consumers have no access to the grid, then electricity can be provided using stand-alone systems. If consumers do have access to the grid, then are the initial charges reasonable? Can th poor easily work through various procedural barriers to get access to electricity? These are all **Access** issues.

The second set of issues relates to the cost of electricity arising after access to electricity is obtained. Is electricity affordable? Do the poor get the subsidies meant for them? These are issues related to **Affordability**.

The third relates to the nature of electricity supply to the poor and the response of utilities to complaints by the poor. How frequent does electricity supply fail in urban slums and villages? Is it easy for the poor to complain and follow up complaints on say, a wrong bill? These are **Quality of Supply & Service** issues.

The fourth and the last group relates to the involvement of the poor in planning and operating the electricity sector. (This has not been shown in the flowchart) How much do the poor know about the programs being implemented for their benefit? Does the Government take inputs from the poor while preparing policies and plans? These issues relate to Awareness and Participation in the electricity sector.

Although Access, Affordability, Quality of supply & service and Awareness & participation are mentioned separately here, all these are also interconnected. For example, domestic consumers using less than 100 units/month in Maharashtra, currently contribute only 4% of the total revenue. These consumers are subsidised - they do not pay the entire cost that is required to supply them with electricity. However, even if they did, their contribution would only increase to 9%. Thus, the poor get bad quality of supply and services because the utilities view them as "non-profitable"- i.e. consumers who either do not pay the entire cost of electricity supply, or consume too less to provide any significant contribution to revenue. Thus the issue of prices for electricity and quality of supply & service are related.

Each issue will be discussed in detail in the subsequent chapters.

What can be done?

It is unfair that although the poor constitute a majority, little attention and resources are devoted towards providing quality and affordable electricity services to them. This could be due to various reasons - low political bargaining power of the poor, low awareness of pro-poor provisions (perhaps due to information asymmetry), lack of credibility of political promises (focus on poor is high only during elections!), view of the electricity companies that providing electricity to the poor is economically not viable, lack of accountability and transparency of electricity companies etc.

Who are the relevant actors to address these issues? The Central and State Governments lay down the legal framework as well as decide the electricity policy for the country. They are accountable to the people through elections. The regulatory institutions (at State and Central levels) set up by the government prepare the rules, regulations and standards of performance to be adopted



by the utilities in keeping with the legal and policy framework. They also perform the function of ensuring compliance by the utilities to their directives and government policies. The distribution utilities provide electricity service to the consumers. They may be private or public companies. They are the principle implementers of the policies and provide electricity to people, while functioning within the given regulatory framework.

A better understanding of the issues affecting the poor and the spaces available to address them is the first step to improve the situation. It would equip the communities to take up these issues with appropriate authorities. This would also sensitise the utility, regulatory staff, policy makers and analysts.

The following chapters discuss each of the issues mentioned above in detail. The next chapter talks about the first issue, "Access to Electricity".



This chapter talks about the issue of *access to electricity*. The problems faced by the poor, in getting and maintaining access to electricity are discussed. It then proceeds to outline the opportunities available to address these issues within the legal and institutional framework of the electricity sector. This includes the Rajiv Gandhi rural electrification programme of the Ministry of Power and the Remote Village Electrification programme of the Ministry of New and Renewable Energy.

What is the scale of this access issue?

Low levels and large variations in electricity access

For many years, 20-25% of the plan money of the Central and State Governments was allocated to the electricity sector. However, as per the 2001 census, 44% of the Indian households still have no access to electricity. The household electrification scenario differs from state to state, urban to rural and rich to poor.



Figure 3.1: 44% of all Indian households have no electricity

Source: Census 2001

Figure 3.1 shows the number of households yet to get access to electricity in some of the Indian states. Some states like Punjab, Haryana and Gujarat have been able to achieve relatively high levels of electrification (more than 70% households have access). However some others like Bihar, Orissa and Uttar Pradesh are far behind with more than 70% of the households as yet unconnected to the electricity grid².

² The numbers mentioned in Figure 3.1. are of official connections. Many people access electricity un-officially by using the neighbour's connection or by using hooks to draw electricity directly from the distribution lines.

By looking at the number of households electrified in each state and the State per capita Domestic Product (SDP), it can be seen that some of the states with a low SDP also have low levels of household electrification. Figure 3.2, highlights this correlation while starkly representing the disparity between states.



Figures 3.2: States with a low SDP have lower levels of household

The divide between rural and urban areas within the states is also evident from similar statistics. 56.5% of rural households still have no access to electricity whereas the number in urban areas is significantly lower, at 12.4%. The situation gets worse in poorer rural areas within the states; for example, in some tribal areas in Maharashtra, the electrification rates are lower than the average rural electrification rates. Figure 3.3 shows the electrification status of households (2007) in one subdivision of the Maharashtra State Electricity Distribution Company Ltd. (MSEDCL). This subdivision for Jawhar, Mokhada and Vada talukas in Thane district - located around 150 kms. from Mumbai - lies in a tribal belt. Though it is not representative of the electrification scenario in the entire state of Maharashtra, it does show the condition of access to electricity in one of the poorest areas in the State. It can be seen that 56% of all the households in this subdivision have never had access to the electricity grid. Almost half of those with access have been 'permanently disconnected' by the utility, with the result that 77% houses currently do not have electricity.

³ This is based on Census 2001 data. Increasing household electrification alone will not automatically improve the State Domestic Product, and in any case SDP is not a comprehensive indicator of development. But this graph gives some insights about the relationship between these two indices.

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Figure 3.3: Three-fourths of the households in Jawhar have no electricity

Rise and slow down of village electrification

There was high focus on village electrification in the first few decades after independence. It can be seen from Figure 3.4 that the decades of 1961-71, 1971-81 and 1981-91 witnessed high pace of village electrification. The pace significantly slowed down in 1991-2001. The definition of village electrification was changed in 2005, and as per the new definition, a much lower number of villages are treated as electrified. This may explain the fall in the graph after 2001.



Figure 3.4: Rise and slow down of Village Electrification⁴

Power sector reforms have concentrated on issues of utility finances, capacity addition and reducing tariffs to industry but have neglected the issue

^{*} Source: MSEDCL and field survey

⁴ Figure 3.4 shows a fall in the rural electrification from 2001 to 2007. Though this has happened, the sharpness of the decline may be due to an asymmetrical representation of the data - i.e. the time intervals starting from 1951 are all for 10 years and the last time interval is just 6 years.

of electricity access to the poor. In states like Orissa, rural electrification wings were discontinued. In many states village electrification programs slowed down and household electrification was neglected.

Take the case of household electrification levels for poor consumers in Orissa. Orissa was the first state in India to initiate power sector reforms with the aid of a World Bank loan. The Orissa State Electricity Board was unbundled and the distribution of electricity was privatized in 1999. Figure 3.5 shows the electrification levels in Orissa and Karnataka over a period of four years (pre and post reform). It can be seen that the electrification level for the poor is much lower than the overall electrification level in Orissa. The situation for poor households is much better in Karnataka even though the electrification levels are lower than those for non-poor households. Even in Karnataka, the level of electrification dropped slightly after reforms. It has however improved in the last few years.





In the past few years, there has been renewed interest and attention to village and household electrification under central government initiatives. We discuss this in more detail later.

Why are the levels of electrification so low?

There are many reasons for these pitifully low levels of access for the poor. Some are given here: 1. Inadequate grid extension - no access as the electricity grid has not reached the village; 2. High initial costs - grid has reached the village but the initial costs for new connections are too high for the poor; 3. Legal and procedural problems - legal and procedural difficulties prevent or cause delays in getting connections; 4. Unsustainable access - defaults and disconnections - Consumers were once connected but have now been permanently disconnected by the utility due to payment defaults

Let us look at each of these issues.

⁵ Source: Impact of power sector reform on the poor: Case studies of South and South East Asia, A.R. Sihag, Neha Misra, Vivek Sharma, Energy for Sustainable Development, Volume VIII No.4, December 2004. The classification for poor and non-poor in the above graphs has been done based on the type of connections that the consumers have opted for. In both Orissa and Karnataka, the Kutir Jyoti Yojana was implemented and single point connections were released to the poor.

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Inadequate grid extension

Electricity generated at power plants is made available to various users through an extensive network of transmission and distribution lines called the grid in order to provide access to electricity. Grid extension for rural electrification slowed down after the 1990's as seen from Figure 3.4. It needs to be noted that extending the grid beyond a limit is not advisable as it may not be cost-effective. It increases electricity losses and results in low voltages. In India, there are many remote villages and hamlets for which grid extension has either not been done or is not feasible. As per verification by the Rural Electrification Corporation, 9075 remote villages and hamlets have been identified in India. The grid can be extended to 4,62,556 non -remote villages of which 68,560 villages have not been electrified as of May 20076. Remote village electrification where grid extension is not possible and local small generating stations are set up to meet local electricity needs has not been given adequate attention for a long time. Only recently, with the formation of a separate Ministry of New and Renewable Energy and promotion of schemes for generating electricity for rural areas etc, it is getting more attention.

High initial costs

In instances where the electricity grid has been extended to the village, for many poor households the cost of an initial connection is very high. The consumer has to pay the 'Service Connection Charge' and in many states, also the cost of the service line that is extended from the distribution transformer to the premises (Service Line Charge).

The following table	e gives a briet	f picture of	the actual	charges to	be paid by
consumers in some st	ates and the a	average expe	enditure of	the poor in	that state.

State	Rajasthan	Maharashtra	Uttar Pradesh	Orissa
Initial Cost (Rs.)*	~2500	~1500	~700-1000	~600-800
% Rural Population with Per Capita Expenditure less than Rs.12/day (Rs.365/month)	17	30	33	57
% Urban Population with Per Capita Expenditure less than Rs.19/day (Rs. 580/ month)	36	25	44	50

* Some states have different initial costs for different kinds of consumers, i.e. rural domestic consumers have to pay a different amount than urban domestic consumers etc. In such cases the amount shown is an averaged from the various amounts charged by the utility in that state.

In Rajasthan, the Service Connection Charge is around Rs. 1,650 for domestic consumers seeking connections under the tribal sub plan. It is Rs. 3,200 for

⁶ Data for remote villages has been taken from the website of the Ministry of New and Renewable Energy and that for non-remote villages from the May 2007 report by the Ministry of Power on the Rajiv Gandhi Grameen Vidyutikaran Yojana.

domestic consumers in an urban area, Rs. 2,400 for domestic consumers in a rural area and Rs. 2,900 for consumers living in a "kachhi basti'. These amounts do not include the Service Line Charges; if added, the initial connection costs for consumers in Rajasthan are much higher.

In Maharashtra, the Service Connection Charge for a small domestic consumer with a connected load of less than 500 Watts is Rs.500. The total amount that the consumer has to pay to the utility after including registration charges and security deposits is approximately Rs. 1460. In a state where 30% of the population has a per capita expenditure of about Rs.360 per month, Rs.1460 is a considerable amount to be paid for an electricity connection. The initial connection costs were much higher in Maharashtra some years back. They have just been reduced.

Legal and Procedural problems

In rural areas and especially in the tribal belts, utility offices are very few and far between. Many people find it difficult to approach the offices for new connections to get the other procedural requirements fulfilled such as premise checks for feasibility and internal wiring reports. Before releasing a new connection the electricity utilities require the consumers to produce proof of residence (e.g. a ration card, or a photo pass or an election card). Very often, due to continuous political tussles regarding the legality or illegality of urban slums, the urban poor find it difficult to produce such documents. With an increasing influx of people into the cities, temporary settlements of migration labourers also often go without access to electricity because of their inability to fulfil all the procedural requirements. In many of these cases, the households then seek connections from their landlords, neighbours, or sometimes from local slum lords. But they are then subject to the threat of disconnection and harassment from both the utility staff and local goons. In addition to these problems, sometimes, there are limits on the number of connections to the poor that the utility wishes to release. All these make this an area where procedures are complex and not very transparent with corruption and malpractice being commonplace. The poor often do not have the resources to overcome all these difficulties.

Unsustainable access - defaults and disconnections

Even those with access to electricity often face unaffordable tariffs or poor quality of supply and service. As shown in Figure 3.3, 21% of the households in the Jawhar subdivision of Maharashtra have been permanently disconnected from the grid due to payment defaults and arrears arising out of this. These payment defaults are at times due to tariffs that are too high for the poor to pay or due to utility lapses like wrong billing. The disconnected households cannot even apply for new connections (even under Government programs) as they are required to clear off the arrears before getting access again.

Another related issue is about load shedding. When the demand on the grid increases, usually during times of high demand in the mornings and evenings, power cuts are introduced in the rural areas first. This has higher impact on the poor, as rural areas have higher number of poor consumers. This largely

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falls under the category of 'Quality of Supply and Service'; but the extent of load shedding is so large that electricity not supplied when needed is almost equivalent to not having access at all.

Providing access to the poor

In this section we address three issues: (1) Whose responsibility is to provide access? (2) What provisions does the legal framework offer (3) What are the new initiatives to increase access.

Whose responsibility is it to provide access to all households?

From 1950 to 1990, the government intervened in the power sector to promote access to rural areas. The electricity industry was regulated and largely owned by various government agencies and organizations. Thus the responsibility for electrification also rested with these agencies notably the State Electricity Boards. Tariff for the poor consisting of small households, farmers, cottage industries and community services were kept below the cost of supply and the remaining amount was recovered mostly through higher tariff for industry (cross-subsidies). In addition to this, the central government established the Rural Electrification Corporation to help finance the extension of the rural grid.

Power reforms were initiated in the late 1990s and electricity boards were unbundled (separate generation, transmission and distribution utilities were created), corporatized and in some states also privatized. There was a focus on reducing subsidies and ensuring the commercial viability of the power sector. Consequently, the state owned and privately owned utilities began discarding their obligations to provide electricity access to the poor.

In 2003, the Government of India passed the Electricity Act (E-Act 2003). Though the primary focus of this Act was to increase the commercial viability of the power sector, it recognized some of the crucial areas in the sector that needed increased attention such as rural electrification, consumer participation and quality of service. In the Act (Sections 4, 5, 6), the Government has recognized rural electrification as socially desirable. Therefore it has given rural electrification a policy as well as budgetary impetus.

In the new framework outlined in the E-Act 2003 and amendments in 2007, the Central and State Governments have a legal responsibility to "endeavour to provide access to all areas including villages and hamlets". Each State Government has to prepare and notify a rural electrification plan. The unbundled power utilities and other state institutions like the energy development agencies are to implement the plan and the regulatory commissions are to oversee it.

The Central Government has also taken up some responsibility for rural electrification through programs like the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY). In some states, rural electrification is implemented through other programs of the Central Government, like the Remote Village Electrification Program of the Ministry of New and Renewable Energy (MNRE). These are explained in the following sections.

What provisions does the legal framework offer?

The E-Act opens some new avenues for improvement in electricity access for the poor. These are:

- The legal framework provided by the Act
- The policy guidelines provided by the
- National Electricity Policy (NEP)
- Rural Electrification Policy (REP)
- The space created by the State Electricity Regulatory Commissions

While the Act and policies emphasize the importance of electricity as a basic need, most State Regulators, in furtherance of E-Act provisions, have drafted regulations stipulating the time within which any request for a new connection has to be complied with. An important new provision in the approach (National Electricity Policy - section 5.1) has been the emphasis on **electrification of Dalit bastis and tribal hamlets**. In fact in the new definition of "electrified village", it is specified that the village will be deemed electrified only if at least one Dalit basti or tribal hamlet (if it exists) of the village is electrified (Ministry of Power). The NEP also re-iterates that Electricity is a "**basic human need" and "critical infrastructure** on which the socio-economic development of the country depends" (Section 1)

Various regulations have made getting access to electricity a concrete reality by setting a time line for the utility to comply with the request. As specified in section 43 of the E-Act the utility is required to release a connection to a consumer within one month of application and payment by the consumer. Delay is accepted only for special cases (like limits on total connections released for agriculture pump-sets, natural calamity) or if significant construction work is involved.

The Rural Electrification Policy requires the government to notify the rural electrification plans to the appropriate Regulatory Commissions. Under Section 43 of the E-Act, the Commissions has to ensure that the goal of providing access to all households is met. Thus the Commissions have an important role to oversee the progress of rural electrification in the respective states. It is possible for civil society to monitor rural electrification programmes by using the regulatory forum to access data and question the implementation agencies. This will increase accountability of power utilities and the state governments in charge of the rural electrification programmes.

Rural Electrification Policy (Section 6) envisages

- Participation of local communities (in the form of district committees) in coordinating and reviewing rural electrification efforts.
- Larger supervisory and advisory roles and responsibilities to Panchayati Raj institutions.
- Participation of women in the power sector via district committees to be set up to monitor rural electrification.

The State Governments were expected to set up district level committees by November 2006 (3 months after notification of the RE Policy)

Though mentioned only as desirable in the REP (without detailing much

Who gets electricity?

about how this is to be achieved) the provisions listed in the box on the Rural Electrification Policy provide a very powerful tool to civil society to actively monitor rural electrification efforts. Direct participation by local institutions can ensure that local leaders, the state government as well as utility officials are held accountable for progress in rural electrification. One route towards achieving this is through initiatives of local administrative bodies like Panchayats and development officers. Community leaders and civil society activists should thus ensure the formation and functioning of district committees to review rural electrification.

The E-Act also opens new avenues for remote village electrification, where extension of grid power may not be viable.

E-Act, 2003 (Section 4, 5, 14)

- Allows for decentralized (stand alone) provision of electricity in rural areas without the need for a license.
- Provides for Panchayat, NGOs, franchisees etc. to take up management of electricity in rural areas.

It is applicable for all 'rural' areas and allows small DG sets, micro-hydro plants, biogas or wood-gasifier based electricity-generating plants to be set up and low voltage lines to be built. Under these clauses of the E-Act, giving electricity connections does not require any approvals from the regulators. Also, the generating party does not require regulatory approval for the tariff being charged. These provisions do create spaces for trying out new ways to achieve rural electrification. However, there are benefits as well as challenges to this approach which are discussed later in this booklet.

What are the new initiatives to increase access?

The Rajiv Gandhi Grameen Vidyutikaran Yojana and Remote Village Electrification Program are two major new initiatives to increase access of electricity. These are discussed below. However, providing new electricity connections does not ensure that the poor will continue to get electricity supply. Thus we also discuss a few issues related to sustaining electricity access.

Rajiv Gandhi Grameen Vidyutikaran Yojana

The Rajiv Gandhi Grameen Vidyutikaran Yojana or RGGVY (2005) is a scheme initiated by the Central Government (Ministry of Power) for extending and strengthening the electricity grid in rural areas and providing household electrification. It has a goal of providing access to electricity to all households in five years (from 2005). The scheme is coordinated by the Rural Electrification Corporation (REC) and implemented by the distribution companies and few other agencies. The Central Government is providing 90% capital subsidy to the distribution company for the overall cost of the projects under this scheme. 100% capital subsidy is provided for electrification of those households that lie below the poverty line.

RGGVY provides capital subsidy for ...

- Strengthening the rural electricity distribution backbone, i.e. constructing distribution lines and sub-stations in places where these do not exist.
- Creating a village electrification infrastructure and electrification of unelectrified villages and habitations.
- Setting up decentralized distributed generation and supply, i.e. supply from conventional sources for villages where grid connectivity is either not feasible or not cost effective. However, this is only for those villages which have not been electrified by the Remote Village Electrification program of the Ministry of New and Renewable Energy

The three initiatives of the RGGVY also cater to the requirements of agriculture, khadi and village industries, cold chains, healthcare, education, and small and medium industries. The original outlay for RGGVY when the scheme was formulated was approximately Rs. 16,000 crore making it the largest rural electrification program in the country. At that time (2005), approval had been given to forward a capital subsidy of Rs.5000 for the implementation of the first phase of the programme. According to a Ministry of Power Report (May 2007), Rs. 9696 crore have been sanctioned for the project, out of which Rs. 4964 has been disbursed to various states.

Remote Village Electrification

The objective of the Remote Village Electrification Programme (RVE) (2003) initiated by the Ministry of New and Renewable Energy is to electrify all the remote villages and remote hamlets of electrified villages through nonconventional energy sources such as solar energy, small hydro power, biomass, wind energy, etc. The programme aims to provide electricity to

- All un-electrified remote villages by 2007
- All un-electrified remote hamlets by 2012
- All households in remote villages and hamlets by 2012

The Remote Village Electrification Programme covers a wide range of activities starting from initial surveys and studies to monitoring and evaluation of implemented programmes. The programme is implemented by the Ministry in conjunction with a state implementation agency, e.g. in Maharashtra, the Maharashtra Energy Development Agency (MEDA) is the implementation agency. Before implementation, an assessment of locally available renewable resources has to be made along with an assessment of the requirements of the community. The state implementation agency is also required to provide training to the local community and develop an institutional framework to address all aspects of the system, i.e. operation and maintenance, revenue collection, monitoring etc.

To Sum it up...

- The Central Government formulates the Act and Policies (E-Act 2003 and Rural Electrification Policy) that provide the framework for rural electrification.
- The Ministry of Power and Ministry of New and Renewable Energy have announced two rural electrification programs RGGVY and RVE respectively.

Who gets electricity?

- The State Governments then have to prepare rural electrification plans and notify them to the Central Government.
- When all the conditions for grants can be fulfilled, the Rural Electrification Corporation (REC) disburses the subsidy amounts to the State Governments.
- The State implementation agency for rural electrification (either the power utility or another agency like say the Energy Development Agency) has to then implement the schemes under which these subsidy amounts are provided.
- The rural electrification plan has to be notified to the Regulatory Commission. The Regulatory Commission has to ensure that the targets of 100% village and household electrification are met.
- Local administrative bodies like District Committees or Panchayats and even local civil society organisations are to be given greater advisory roles to review the implementation of these schemes.
- These local institutions can also participate directly as franchisees (explained later) and undertake distribution of electricity in their feeder area.

Sustaining access to the poor

Between these two programmes of the Central Government, there is potential to actually provide access to many of the 56.5% rural households in India who do not have access. However, there is a gap between the programme and the actual implementation on the ground.

The Rural Electrification Policy stated that all State Governments were required to prepare and notify a rural electrification plan by February 2006. The Central Government had not received any plans from the States till the deadline.

Status as of May 2007 - MoP Report

27 states are now considered "RGGVY States" by the MoP - States with whom agreements under RGGVY have been signed.

Out of these 27 RGGVY states, subsidy amounts have been disbursed to 21 states

Only 8 states have registered some progress in rural electrification. 3 of these states, being Gujarat, Karnataka and Andhra Pradesh, where electrification is already better than the national average.

In the other 13 states, there has been no progress in rural electrification despite disbursement of Rs. 626 crore in the last 3 years.

Out of the total un-electrified households, only 1.46% have been electrified in the last 3 years.

Out of the total un-electrified BPL households, only 4% have been electrified in the last 3 years.

In 20 per cent of the villages said to be electrified, electricity supply was actually not available.

http://www.indianexpress.com/story227434.html (12/10 /2007) - Source cited as CEA report)

It seems that RGGVY is making progress in village electrification, but the focus on household electrification is getting diluted (considering the dismal numbers). This could result in electricity lines getting built, without meeting the most important objective of providing electricity to poor households.

There is also the issue of whether all the BPL households will be able to get the benefit of 100% subsidy to which they are entitled. Our concerns stem from the difficulties that have been experienced in identifying BPL households.

The fact that very little progress has been made under RGGVY, even after disbursement of funds, is a cause for concern. Although, between 1950 and 1990 there was considerable improvement in the status of rural electrification, a large section of households (i.e. the poor households) remained without access. It is necessary to institutionally/legally 'ring-fence' the money intended for the poor -i.e. ensure its usage exclusively to improve services to the poor. There should be greater and direct monitoring of compliance by utilities. For example, the Rural Electrification Policy advocates for the creation of village electricity committees and district committees which would involve local administrative institutions, organizations, activists and leaders in reviewing and monitoring rural electrification. Right to Information Act (RTI) tools could be used for direct intervention by the public, leading to better accountability and in turn better service delivery.

Without the government schemes, many utilities charge high amounts for new connections. A strong case for lowering the initial costs needs to be made by the public. The Regulatory Commission provides an excellent forum for these demands.

- Through the orders given to fix the 'Schedule of Charges', the Commission determines the amount that the utility can demand from a consumer while giving a new connection.
- The Commission also holds a public hearing before passing this order.

Thus, intervention during these public hearings to reduce initial connection costs for poor consumers can be an effective step toward addressing this problem. For example, MERC substantially reduced the connection cost (including provision of meter owned by the company).

There is also the problem of sustaining access of electricity. High tariff and irregular metering & billing practices of the utility lead to high bills which the poor cannot pay, which in turn lead to permanent disconnection. Sometimes the government provides amnesty to poor consumers to reduce or eliminate their arrears. This could serve as a one-time relief measure, but improving the quality of billing service and making the tariff affordable offer lasting solutions. The following chapter discusses one of these issues - affordability of electricity - in detail.

Is electricity affordable?

One of the most critical aspects of any basic service (like water supply, healthcare, education, public transport or electricity) is its affordability. This chapter discusses the issue of affordability of electricity for the poor. After a brief introduction on what the consumer pays the companies to get electricity, the issues related to affordability are discussed. What are the reasons for high tariffs? What are the various opportunities available in the policy as well as regulatory framework to address these issues?

What all do we pay the electricity companies for?

Even though electricity is considered a basic service, it is generally accepted in India, that it is a service that has to be paid for. As mentioned in the previous chapter, there is money to be paid while getting new connections - service connections charges, service line charges, security deposits etc. Also, consumers have to pay for the electricity used by them during the month. In this chapter the focus will be on this aspect - the charges that consumers have to pay for using electricity.

The tariff schedule prepared by the electricity company and approved by the Regulatory Commission has details of the categories of consumers and the charges applicable to each. See the extract from the tariff schedule for Maharashtra for the year 2006-7 in Table 4.1 for domestic, small commercial, and agriculture consumers. Consumers are divided into various categories based on the purpose for which the electricity is used, e.g. agriculture, domestic, industrial etc. Electricity charges are different for each category. Within the categories, there are various consumption slabs, and the charges are different for each slab- those who consume less have to pay a lower charge per unit of electricity and the per unit charge increases as the consumption increases. This method is called telescopic tariff.

The variable charge is the major part and is different for different consumer categories. Fixed charge is based on the costs incurred by the company (setting up the substations, distribution lines; operation and maintenance; salaries; administrative costs; meter reading, billing and collection etc) and is also different for different consumer categories. In addition to these two, the tariff schedule also gives details of miscellaneous items like fuel surcharge, taxes, incentives, penalties and other charges as applicable from time to time.

Consumer Category	Fixed Charges (Rs/service connection per month)	Energy Charge (Paise/kWh)
LT I (Domestic)		
Below the Poverty Line Consumers (0-30 Units)	Rs 3 per service connection	40
Consumption more than 30 Units	s per Month	
0-100 Units 101- 300 Units	Single Phase: Rs. 40 per service connection:	190 340
Above 300 Units	Three Phase: Rs. 100 per service	450
(Only balance Units)	Additional Fixed charge of Rs. 100 per	
	10 KW load or part thereof above 10 KW load shall be payable.	
Consumer Category	Fixed Charges/Demand Charges (Rs/service connection per month)	Energy Charge (Palse/kWh)
LT II (Non Domestic)	Single Discor Bo 100 par condea	200
101- 200 Us#c	connection:	290
Above 200 Units	Three Phase: Rs 150 net service	373
(Only balance Units)	connection:	150
(only bolance onlice)	Additional Fixed Charge of Re. 150 per 10	
	KW load or part thereof above 10 KW load	
	shall be payable.	
	Optional LTMD based Tariff will be	
	available for all consumers.	
Consumer Category	Demand Charges (Rs/HP/month)	Energy Charge (Palse/kWh)
LT IV - Agriculture		
Un-metered Lariff		
Calegory 1 Zones*	Rs 180 per HP per month	0
Category 2 Zones#	Rs 150 per HP per month	0
Metered Tariff (including		
Poultry Farms)	Rs 15 per HP per month	110

Table 4.1. Extract from Tariff Order for Maharashtra (20/10/2006)

Electricity bills are prepared typically once a month or once in two months. The monthly bill gives the total charges payable, which is the sum of variable, fixed and miscellaneous charges. The variable part is calculated by using the amount of electricity used and the variable charge applicable to the consumer. The fixed part depends on the consumer load and the fixed charge applicable. This does not vary with the amount of electricity consumed. The third part covers miscellaneous charges like fuel surcharge, arrears, taxes etc.

Bill = Fixed part + Variable part + Miscellaneous part

In many states, agricultural consumers and some domestic consumers are not metered, i.e. the actual amount of electricity used is not measured consumers pay a fixed amount each month based on the connected load and estimated hours of use.

Can everybody afford electricity?

In the last chapter, the high cost for getting a new connection was pointed out. This is the first hurdle preventing the poor from getting electricity. The next hurdle is of high charges for the use of electricity. We will take a look at charges for small domestic and small agriculture consumers.

Is electricity affordable?

Just to get an idea of monthly consumption with various appliances					
2 x 60 Watt incandescent bulb	x 4 hour/ day	= 15 units /month.			
3 x 40 Watt tubes + 2 x 40 Watt fans + 1 x 70 Watt television set	x 4 hours/ day x 10 hours/ day x 2 hours/ day	= 42 units /month.			
1 x 3 HP pump 1 x 5 HP pump	x 400 hours/ year x 2555 hours/year (7 hours/ day)	= 75 units /month. = 780 units/month			

Domestic Consumers

Figure 4.1 shows the per unit charge of electricity paid by various domestic consumers (falling in different tariff slabs) in the states of Maharashtra, Delhi and Rajasthan. The charges shown in the figure contain both the fixed as well as the variable charges. The units consumed per month are shown on the horizontal axis whereas the charges per unit are shown on the vertical axis.





As seen from the figure, the value of per unit charge is high in all three states when the electricity consumed is low (below 50 units/month). This is mostly due to the fixed charge, which as explained before, remains the same irrespective of the amount of electricity consumed. Those who consume less electricity (towards the left in the graph), pay a higher charge per unit of electricity, even though their total bill amount is low due to low consumption.

In 2003-04, a new BPL category for tariff was introduced in Maharashtra, with a rider that the consumer must consume less than 30 units per month consistently for 12 months to be eligible for the BPL tariff. If the consumer exceeds this limit even by one unit in one month of the year, the tariff applicable is different and much higher. This provision creates a much needed separate category for the poor, while trying to filter out the rich and 'week-

end' homes of the rich. But the billing problems of the utility can render the provision useless, by re-classifying the actual BPL consumers for even one aberration in their bill.

...for consumption of 15 units in Maharashtra, a BPL category consumer has to pay only Rs. 0.92 per unit (a highly subsidized tariff not shown in Figure 4.1). But if the BPL tariff does not apply, then the same amount of consumption would be charged at Rs. 4.98 per unit (a tariff higher than that applicable even to a consumer consuming 500 units per month!).

The scenario in Rajasthan for poor consumers is worse. A person consuming the least amount of electricity (15 units - presumably a poor consumer), pays the highest tariff, i.e. Rs. 7.28 per unit. Those consuming the highest amount (500 units - presumably using air conditioners, frost-free refrigerators etc.) pay a lower tariff, i.e. Rs. 3.56 per unit.

The magnitude of the 'high tariff' - problem of can be understood by examining whether everybody can afford to pay these rates for electricity. According to a report by the National Commission for Enterprises in the Un-organised Sector (NCEUS), 77% of India's population survives on a daily consumption of just Rs.20/day. Thus, the cost for 1 unit of electricity for a household which could be anywhere between Rs.3 to Rs.8 (monthly bill of at least Rs. 100), with a threat of disconnection if they do not pay, is quite high for small consumers. It is quite likely that the high connection charges and high tariffs significantly contribute to the low levels of household electrification levels in many states.

Agriculture Consumers

The tariff for agricultural consumers is generally low and the issues for them are about motor burnouts due to low voltage and unfair distribution of subsidy. These issues are addressed later in the booklet. Here, we highlight the fact that the rich farmers, using high capacity pumps and drawing large amounts of water are charged at a much lower rate. This can be seen from figure 4.2 for the states of Maharashtra, Rajasthan and Karnataka.



Figure 4.2 Per-unit charges for agriculture are high when consumption is very

*The data to construct this graph has been obtained from orders of Regulatory Commissions and a Prayas study which is in progress. This graph shows the flat rate (un-metered) tariffs in the states (i.e. Rs. /hp). Consumption patterns are assumed for 3 typical consumers - Use of a 3 hp motor for 800 hours/year (seasonal farming), use of a 5 hp pump for 1300 hours/year (double cropping) and use of a 7.5 hp pump for 1700 hours/year (multiple cropping). It is again evident from the figure that in all three states, the farmers using the least electricity (i.e. using pumps of lower rating for a lesser amount of time) pay the highest tariff per unit, i.e.

- Rs. 2.01 in Maharashtra
- Rs. 2.95 in Rajasthan
- Rs. 1.83 in Karnataka

While those using the maximum have a lower tariff.

In some states, new connections for agriculture are metered and these consumers pay different tariffs. In some states (like Punjab, Maharashtra etc.) the metered tariff is designed in such a way that most consumers pay a reasonably low amount irrespective of the consumption, if they opt for metered tariff.

Agriculture pumps are not the only electrical equipment used by farmers. Other electrical devices are used for farm related activities like husking, milling etc. which could be individually owned or shared by a number of farmers. The numbers may be small, but these devices are critical and their usage is significant. Utilities do not often have a category to accommodate these devices as agriculture connections are only allowed to operate pumpsets. However, many farmers also use the agricultural connections to run these devices. This becomes an area of dispute and resultant harassment by the utility officials.

Why are the charges high?

The actual cost of supplying electricity (generating, transmitting and distributing it) is higher than what most poor consumers can afford. This is due to the actual input costs being higher than what they need to be, due to the inefficiencies in the sector and also due to the low purchasing power of the poor. While efforts to remove the inefficiencies and increase the purchasing power of the poor are in progress, electricity supply to the poor has to be subsidised. If this is not done properly, electricity charges will remain unaffordable.

Issues with supply of electricity

Sub-optimal capacity addition plans (where costly power stations are planned), inefficient capital expenditure (where money spent does not give expected benefits), inadequate maintenance of the system (leading to high power losses), low attention to end use efficiency programs (which have many advantages compared to generation capacity addition) lead to high costs of power. For example, high losses in the system require installing more generation capacity to cover the losses. The costs for this are passed on to all consumers by the utility. Thus the costs of poor decision making and other inefficiencies are actually borne by the consumers.

Power theft is another issue. The estimates of power theft figures vary from state to state, area to area, time to time and consumer to consumer. Hooks are used in villages and there is sophisticated stealing by some industry and commercial consumers. It is quite likely that the quantity of electricity theft by big industrial and commercial consumers is comparable to the theft by the urban and rural poor. Power theft is use of electricity without any revenue to

the electricity company. This leads to shortage of electricity supply and increases the electricity charges. Both these affect the poor much more. After getting disconnected, the poor often use hooks to access electricity illegally because the procedure for getting legal supply is complicated and costly. The 2007 amendment in the Electricity Act, 2003 makes electricity theft a cognizable, non-bailable offence, and there is a possibility that harassment of the poor may increase.

Issues with Subsidy

Subsidy consists of two parts: (1) *Cross subsidy*, where the larger/richer consumers pay a higher charge, thus reducing the tariff to the poor and (2) *Direct subsidy from the State*, where the government provides budgetary support to the electricity company so that it can reduce the tariff for the poor consumers. However, since reforms in the power sector, the situation has undergone some change. Orissa for example brought down the state subsidy to zero immediately after reforms. **One of the overarching mandates and directives given by the Government in the E-Act as well as the policies is to reduce cross subsidies.** This has in recent years led to an increase in tariff for many small consumers.

In Maharashtra, after the initiation of reforms until 2003-04, the tariff for industrial consumers steadily decreased while that for the other consumers increased, as can be seen from Figure 4.3.



Figure 4.3: Drastic changes in Tariff after reforms in Maharashtra⁷

What can be done to address these problems?

There are a few steps which can help in making electricity affordable for the poor. Broadly these steps are: (1) Retaining subsidy until poverty is reduced and

⁷ The sharp rise seen in the graph in 2006 is due to the fuel adjustment charges levied on industrial consumers by the Regulatory Commission.

managing it better; (2) Retaining and improving the pro-poor provisions in the tariff structures; (3) Managing utility operations and planning better through cost reduction, loss reduction and promotion of end-use efficiency.

Better management of Subsidy

Even though the E-Act and associated policies advocate the reduction in cross subsidies, they do recognize that subsidies cannot be completely eliminated. The E-Act had initially directed the 'reduction and elimination of cross subsidies', but the elimination clause has been removed in the 2007 amendment. The National Tariff Policy states as one of its objectives that the supply of electricity should be at reasonable and competitive rates to everyone (Section 4). It is also allows retention of the subsidy as long as the tariff is within 20% of the cost of supply (section 8.3). Apart from these, the National Electricity Policy suggests preparing a special category for poor consumers and providing them with a minimum lifeline consumption of 1 unit/day (Section 2).

Capital subsidy

Capital subsidy is provided to encourage rural electrification programs and reduce the connection charges. This is the case with the Rajiv Gandhi Grameen Vidyutikaran Yojana, which was described in the previous chapter. Under this program, 100% capital subsidy is given to rural BPL consumers to get electricity connection. It is important to monitor such programs to ensure that deserving households benefit from this program.

Tariff Subsidy

In the previous chapters, the various uses of electricity starting from use for 'basic' services to 'enabling' services were listed. If the goal is to enable access to electricity, provide livelihood security, and empower the poor, then it follows that subsidizing domestic consumption only is not enough. Small agricultural users, cottage industries, small commercial establishments and community services should also be supplied power at affordable rates. A notable shortcoming of the E-Act and all the policies - NEP, NTP and REP, is that though they address subsidies for domestic consumption, they are silent on subsidising electricity for poor and marginal sections of farmers and consumers from other categories.

To ensure empowerment and livelihood security, it is important to advocate for subsidised electricity not only for poor domestic consumers (consuming less than 40 units per month say), but also those of other categories, like

- Poor agricultural consumers (with pump-sets of 3 horsepower or less, operating for less than 400 hours a year),
- Small commercial consumers (consuming less than 100 units per month) and
- Small cottage industries.

Even though, this seems like a lot of subsidy, if compared to the loss incurred by the utility due to inefficiency, this amount is not large. For example, if

all the domestic and non-domestic (LT1 and LT2), low tension, consumers in Maharashtra consuming less than 100 units per month are expected to pay only 50% of the average cost of supply, it would cost the utility an *additional* ~Rs. 400 crore. (Agricultural consumers not included). This would mean a tariff increase of about 9-13% (depending on the consumption pattern of consumers in the 0-100 slab) for the other consumers - those consuming more than 100 units.

Targeting & managing subsidy

Today, low tariff is given to a broad category of consumers, for example, all agriculture consumers. It is clear that those using more electricity (having high capacity pump-sets operating for longer hours) corner a higher share of the subsidy amount. A demand for official consideration of all small consumers (domestic, agriculture and others) for subsidy may reduce across the board subsidies that often get siphoned off by the non-poor. In Andhra Pradesh, 'free power to agriculture' was announced, by the Congress government for the benefit of distressed farmers. It made power free to all farmers and waived the existing arrears. As a measure to improve targeting of subsidy, this policy was later modified to exclude rich farmers from the free power scheme and to making demand side management measures compulsory.

Another complication is that often subsidised consumers are not metered. Hence the amount of electricity consumption is estimated by the utility based on assumptions like load and hours of use. There is a tendency to over-estimate the consumption by this category since that would increase the amount of State subsidy and reduce the figures of electricity losses.

The regulator has a significant role in the accurate determination of subsidy. First - s/he isrequired to approve the quantum of un-metered consumption determined by the utility. Second - he must check if the appropriate basis was used to determine the tariff and subsidy amount - while determining tariff, whether the average cost of supply was considered (as directed by the NEP) or just the cost of supply is considered. This can make a substantial difference in the determination of subsidy amount

Another important role of the regulator is to fix the cross subsidy surcharge for the consumers who opt for 'open access'. There is provision in the E-Act which allows large consumers to procure power from a supplier of their choice and not the local distribution company. Since large consumers contribute to cross subsidy, this option would reduce the total cross subsidy amount of the local utility. If this reduction is to be compensated, government subsidy amount needs to increase. In order to address this issue, open access consumers have to pay a cross subsidy surcharge to the local utility. The regulator has the power to decide the procedure for calculating the amount of this surcharge, and can thus directly regulate the amount of cross subsidy.

Tariff Structure

The NEP recognizes that BPL category consumers need to be "adequately subsidised" and there is a need to properly target subsidies (Section 5.1). The telescopic method of tariff fixing uses consumption slabs with increasing tariff applied to those consuming more. As a modification to this, the NEP and NTP have directed the regulators to create a separate category for 'BPL'

Is electricity affordable?

domestic consumers and 30 units /month is suggested as a threshold below which electricity consumption should be heavily subsidized. This is an effort to better target subsidies and to reduce siphoning off of benefits by the nonpoor. The implementation of this policy directive has been different across states. The following table shows the scenarios in three states, Maharashtra, Karnataka and Rajasthan.

	Maharashtra	Karnataka	Rajasthan	Madhya Pradesh	Orissa	
BPL threshold	30 units/ month	18 units/month	No BPL category	30 units/ month	30 units/ month	
Remarks	Very low energy and fixed charges applied across the board for all consumers - rural and urban	Households covered under the Kutir Jyoti Yojana, charged for this consumption	Poor consumers pay higher tariffs than the non poor	The tariff is not low for this category (Rs.2.65). But there is no fixed charge payable by consumers. Also the next category has only a marginal increase in tariff. There is no telescopic benefit.	A fixed charge of Rs.30/ installation for single point connections released under the Kutir Jyoti Yojana	Jenny hr

Thus it is evident that different kinds of intervention are needed in different states. In some states such as Rajasthan where the poor pay almost around Rs. 7.28 per unit, a regulatory directive is needed first and foremost to create a category for small consumers.

In Maharashtra, as explained before, if the consumption exceeds the 30 units/ month threshold even for one month of the year, there is a four-fold increase in the billed amount. For poor households, this is an extremely unaffordable tariff. The possibility of exclusion is enhanced due to the large amount of wrong metering and average billing practices by power utilities. Thus, though the category technically exists, it is very possible that many poor consumers have been denied its benefits. It is thus necessary to design better criteria which would mean minimum exclusion - for example, using the average yearly consumption as a criterion for BPL categorization instead of the currently used criteria.

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The aspect that is the most difficult to capture is the diversity in the socioeconomic conditions of consumers in the country or even in one state. Urban BPL consumers consume more electricity than their rural counterparts as they usually have more appliances in the house. Yet in many states the BPL consumption threshold is the same for rural and urban areas. So the urban poor pay higher tariffs for electricity even though their incomes might be earned as day wage labourers and domestic workers. Even amongst the agricultural consumers there is considerable diversity. In Maharashtra, the socio-economic status of farmers in the western region is better than the farmers from the eastern regions of Marathwada or Vidarbha.

The E-Act, 2003 allows the Regulator to consider the geographical situation of consumers as a basis for tariff determination - Section 62 (3). As this section suggests, regional, social and economic disparities could also be considered while determining the tariff. However, it should be remembered that this calls for a socio-political role of the regulator, different from the techno-economic one.

New emerging technologies such as 'limited load connections' can be used to make electricity more affordable to the poor and improve the quality of service. This may require creation of a new category. As with the Kutir Jyoti Yojana where single point connections were given to consumers, load limiters can be used to allow consumers a fixed connected load (less than 150 Watts). If the consumer exceeds this load, the supply is cut off and resumes automatically on reverting back to the allowed load. Consumers could be charged a fixed amount every month if they opt for these connections. Since many poor users of electricity are mainly concerned with lighting loads, this could be an effective option for utilities to provide legal connections to many households. The consumers would get the added benefit of being assured a fixed billed amount every month without the fear of billing and metering errors.

Thus, there are many provisions within the legal and policy framework that allow community leaders and activists working with the poor to take up issues of affordable electricity.

- Capital subsidy for lower connection costs for the poor.
- Special BPL category for the poor as directed by the NEP
- Tariff subsidy for low-tension consumers using less than 100 units/month.
- Low fixed charges for the poor
- Low energy charges (say 50% of total cost of supply)
- Better targeting of subsidies
- An understanding of geographical and socio-economic condition of consumers (and would-be consumers) while fixing the tariffs.

Improving Operation and Planning

The utility has to get its capacity addition and capital expenditure plans approved from the regulators. During this approval process, civil society and consumer groups are given an opportunity to intervene and comment. Civil society should act as a watchdog during the process to prevent the approval of inefficient plans as the financial burden of these inefficiencies would fall disproportionately on the poor. The Act and policies provide some tools for

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effective intervention in the regulatory process.

E-Act 2003 (Section 63) states that the (generation/transmission/parallel license for distribution) tariff adopted (approved by Commissions) should be that determined through a process of competitive bidding. Making every stage in the bidding process transparent will eliminate the inefficiencies that arise due to practices like signing unfavourable Memorandums of Understanding between companies and Governments.

The E-Act 2003 also directs the Regulatory Commission to decide tariffs based on the economic use of resources, good performance and optimum investments (Section 61). Thus the Commission is legally required to approve projects that follow these criteria. The Commissions have to check the prudence of capital investments made by utilities before passing on the costs to consumers. Civil society should ensure that these directives are adhered to and gross inefficiencies are avoided while planning for new capacity addition and capital expenditure.

As discussed in this chapter, poor paying capacity of the small consumers is used as an excuse by the utility to provide poor quality of supply and service to these consumers. Thus, poor consumers not only face problems getting access to electricity and then being able to afford the high tariffs, but they also have to face problems like load shedding, poor quality of electricity supply, irregular metering and billing, and unsatisfactory complaint redressal. All these issues are discussed in the next chapter.

-5-

Quality of supply and service

'Quality of Supply' and Quality of Service' are two very important but often neglected aspects of the electricity sector. Electricity consumers often suffer from poor quality of electricity supply. Continuity of supply and reasonable voltage levels are the two most important aspects of supply quality. Frequent interruptions, load shedding, blackouts and low voltage levels lead to loss of productivity and inconvenience. They also force consumers to invest in voltage stabilizers, protection equipment, costly alternate supply sources like diesel generation sets etc. The situation with respect to quality of service, especially ease of interaction with the utility and utility response to consumer complaints is not very different. Another area of concern is related to safety - electricity shocks and accidents. Poor consumers are given a low priority when it comes to quality of electricity supply and service. Reasons could be the low revenues from the poor, lack of sensitivity to their issues and their weak political muscle.

In this chapter, we discuss the problem arising from poor quality of supply and the compounding effect of poor quality of service. We look at the possible options available to the consumer to address these problems and also discuss some changes required in the framework currently available for addressing these problems. For clarity, Quality of Supply and Service (QoSS) is described under three sections - electricity supply interruptions, voltage problems and quality of service.

Electricity supply interruptions

What are the reasons for supply interruptions?

Interruptions to electricity supply could be planned outages (decided and implemented by the utility - load shedding, switching off supply for maintenance work etc.) or unexpected breaks in supply (e.g. fuse failures, breaking of lines, burning of transformers etc.). There are different parameters used to understand the magnitude as well as the frequency of supply interruptions. For example, the time duration of interruptions, the number of interruptions, notice period given for load shedding, monthly/yearly interruption statistics etc. are used to quantify the supply interruptions. The supply interruptions experienced by consumers can be categorised as planned interruptions and unplanned interruptions.

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Planned Interruptions

Today, the power supply available is much less than the power demand. Measures to reduce the demand through improving efficiency of electricity use have been slow and new capacity additions by utilities have not been able to match the rate at which demand has been increasing. Power demand from agriculture consumers is quite significant and since they (especially the poor) pay subsidised charges for electricity, it is in the utility's short term financial interest to first cut off power supply to them when the demand on the system increases during peak periods. Another argument given by the utility to justify this is the high technical and commercial losses in the rural areas. Technical loss is high due to long and ill-maintained lines and poor quality of pump motors. Commercial loss is high due to theft, low bill recovery etc. This planned cutting off of power supply to certain consumers is also called load shedding. Since rural feeders carry power for agricultural consumers and rural (domestic and commercial) consumers (except in some states like Gujarat), the cutting off of supply to agricultural consumers results in cutting off power supply to rural households as well.

Utilities also undertake periodic maintenance, which is often planned in advance and consumers informed. These breaks in supply are also classified as planned interruptions.

Unplanned Interruptions

One of the main reasons for unexpected interruptions is fuse failure at the consumer or utility location. Consumer fuse failure could be due to malfunctioning of wiring or electric equipment. Utility fuse failure happens due to reasons like lightning, trees (or such objects) touching the power lines, or due to malfunctioning of distribution equipment. Interruptions could also be due to physical damage to distribution equipment (like burning of transformers or snapping of power lines). Also, unexpected failures could occur due to overloading of the grid. These interruptions can be reduced by better planning, strengthening grids and better maintenance. In many states the utilities are heavily understaffed, especially in rural areas. With a widespread distribution network, the utility staff has a difficult job of maintaining the distribution system, especially during seasons of extreme weather.

What is the scale of this problem and what are its effects on the poor?

Load shedding in rural areas is the highest. Due to large shortfalls in capacity and growing demand for electricity, many states (AP, Maharashtra, MP, and Karnataka to name some) have resorted to load shedding in recent years. Some states like Maharashtra call it "14 hours of load shedding" (in a day), whereas some other states, to prevent political backlash, use the phrase "supply of power for 10 hours". There are many states which are currently in a similar situation of huge shortages during peak hours. Unexpected interruptions also cause the same problems in rural areas. Line failures especially during the monsoons leading to days together of unplanned outage are a frequent occurrence in many parts of the country.

In Maharashtra, the load shedding time table for the summer of 2007 provided for 14 hours of load shedding in rural areas, 6-8 hours in small towns and 2-4 hours in big cities. Mumbai was omitted from this time table, as the utilities supplying power to this city are different. Pune, the next largest city was also excluded as the industries in and around Pune, contributed to the utilities power by generating their own electricity and Pune consumers paid the additional cost to these industries in the form a surcharge on electricity tariff. Thus these two cities enjoyed zero load-shedding while the rest of the state suffered heavy load shedding. Consumers in some parts of the states received electricity only from 10 o'clock in the night until 6 o'clock in the morning.

Children, in times of examinations have faced many problems due to long hours of load shedding. It is no surprise that cities with zero load-shedding like Mumbai and Pune in Maharashtra boasted of better examination results than those in rural Maharashtra this year. Almost 12-14 hours of load shedding is an additional burden laid by the power sector on students from rural areas, who already have to battle against many odds (From an article by P. Sainath - The Hindu). This along with staggered hours of supply to agricultural consumers (farmers have had to shift their pump usage times to the night) and small commercial consumers like grinding mills creates a grim picture of the power situation in rural areas. Women, the most affected by this low reliability of power supply, have to revert back to traditional, more time consuming ways to complete household chores due to poor reliability of power supply. (For example, manual grinding of grains - on an average women spend approximately 2 hours processing food, a large part of which is processing grain, as reported by ESMAP Energy survey 1996). Small, rural industry depending indirectly on seasonal agriculture (like mango pulp canning industry for example) also suffers from long hours of load shedding.

Community services (like drinking water supply, health centres etc), also get severely affected by this.

How can this issue be addressed?

Different approaches are required to address the problem of load shedding and that of unexpected breakdowns. In load shedding, the first issue to address is about reducing the demand-supply gap and the second one is about fair allocation of load shedding.

Load Shedding: reducing the demand-supply gap

The main reason for load shedding is that the demand for power is more than the supply of power. As more people have access to electricity and as industry continues to grow, the demand for electricity is bound to increase. Groundwater irrigation has also increased in the past years contributing to an increase in demand for electricity. A large part of the electricity generated is lost as 'Transmission and Distribution loss' (T&D loss) which includes technical loss and theft. The serious shortage in capacity in the years 2006 and 2007 are a culmination of inadequate planning by the Government and power utilities. On one hand new capacity addition has been slow while on the other hand faster and less capital intensive options of improving energy efficiency have also not

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been adopted. Hardly any electricity utility in the country does a realistic, scientific demand forecast (i.e. a forecast of the rate at which demand for electricity will grow in the future, which sector will require more etc.).

The regulator, to a certain extent, can play a part in **improving the utility's planning** processes and hence help in reducing the supply demand gap. The National Electricity Policy emphasises the importance of an integrated planning approach to be able to optimise resources.

National Electricity Policy (Section 5.6)

"Effective utilisation of all available resources using efficient and cost effective technologies is of paramount importance".

"Integrated Resource Planning as a step toward achieving this".

However, the line between regulatory jurisdiction and utility initiative is not always very well defined, thus creating a situation of inaction which subsequently hits the poor consumers the most. The regulator has so far been slow about pro-active actions to improve the planning process. The initiative is expected to come from utilities which unfortunately seem to rely more on increased load shedding hours (more so in rural areas) to solve the problem.

However, recently some new approaches have been followed for mitigating the shortages in short term. They generally help or encourage people to reduce consumption by banning or creating disincentives for non-priority services, allocation of shortages among different consumers and areas. As discussed earlier, generally, when faced with shortages utilities prefer to improve their bottom line by reducing supply to rural areas. But some interesting efforts are also being attempted. These include regulatory decisions on sharing of load shedding, segregation of agriculture consumers from other rural consumers for reduced supply, targeted efforts to reduce electricity use of some consumers.

The Akshay Prakash Yojana implemented in Maharashtra attempted to regulate power use through consumer-utility partnerships. The scheme included initiatives toward taking collective responsibility for tackling load shedding problems in the villages (see the Box).

Akshay Prakash Yojana implemented in Maharashtra (2006) attempted to regulate power use through consumer-utility partnerships. The scheme included initiatives toward taking collective responsibility for tackling load shedding problems in the villages. Villagers were asked to regulate electricity use during peak hours, using it only for residential lighting during these times; thus electricity used for agricultural pumps, flour mills, lights required in schools etc. was scheduled for use only during the necessary hours. Theft was also checked and people were asked to give up appliances consuming extremely high amounts of electricity, e.g. hot plates, heaters etc. (see Figure 5.1). The demand in these villages dropped, some times by as much as 50-70%. In return they were given 22 hours of assured electric supply in a day. This scheme had been implemented in 4.611 villages and according to MSEDCL figures, had reduced the peak demand by 960 MW. Unfortunately, this scheme had to be discontinued. Official reasons given for this were extreme shortage which made it difficult to supply electricity for 22 hours to the Akshay Prakash villages, and lower benefits than expected from the scheme.

Figure 5.1: Akshay Prakash Yojana - Confiscated heaters and hot plates in Dindori Jopul (Maharashtra)



Another innovative initiative was the **load management charge**, introduced by the Maharashtra Electricity Regulatory Commission in their Tariff Order for the year 2006-07 for consumers in Mumbai. The order asked large consumers (e.g. households consuming more than 300 units/month) to reduce their consumption to 80% of what it was in the same month a year ago. If this was not achieved, the incremental units would be charged at the rate applicable for the highest slab in that category. This was a good initiative to reduce consumption in Mumbai, where lot of electricity is misused and wasted by large consumers. However due to resistance from different quarters, the Commission withdrew this provision.

India can follow the example of some of its neighbours like **China, Thailand, and Philippines** in ways of handling high demands. In China, when the load reaches close to the point where shedding it is inevitable, the air-conditioners in Government offices are the first to shut off. In Thailand the Government has undertaken large scale awareness programs to encourage people to conserve electricity - e.g. a television program was telecast at the prime time showing the load curve. People were asked to shut off one light in the house and they were shown the considerable change in the load curve when a large number of households switched off one light in the house.

As explained above, the load shedding in rural areas is much higher than that in urban areas even though rural consumers pay the same tariff as urban consumers. At times utilities find it more affordable and thus prefer to resort to load shedding in rural areas instead of running the existing power plants. In Andhra Pradesh, many gas plants (which could have been run on a more expensive fuel like Naphtha) were lying shut due to unavailability of gas while rural areas suffered many hours of load shedding. Naphtha being expensive could have caused the utilities more expense and it was cheaper to resort to load shedding in rural areas.

Load Shedding: Fair Allocation

While the solution to load shedding is complex and would take time, it is possible to make load shedding practices more equitable. The Regulator plays

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an important role in approving the load shedding time tables prepared by the utility; i.e. the regulator approves the times for which the utility will cut off power supply to a particular area. Community representatives in some states (like Maharashtra) have very ably participated in the public hearings to argue against increased load-shedding hours in rural areas. In the short term, intervention to argue against increased load shedding hours is necessary and important, but the Commission and the utilities also need to be held accountable for not undertaking sustainable planning practices. Community representatives should put pressure on the regulator and the utility to ensure these steps:

- 1. Improve the planning processes through preparation and review of load forecast, end use efficiency measures and capacity addition plans
- 2. Require the utility to undertake demand side management (DSM)/ energy efficiency and conservation programmes.
- 3.Be fair to the rural poor while deciding the load shedding time table.
- 4. Ensure compliance by the utility by ground level monitoring of both load shedding practices of the utility and implementation of demand side management programmes.



Unplanned Interruptions

The problem of unplanned breakdown can be reduced by better planning and maintenance. This is primarily the job of distribution utilities and pressure should be put on them to achieve this. The E-Act (Section 57) mandates the Commissions to specify the standards of performance for the utilities (guidelines and benchmarks for quality of service). It specifies that,

- The utilities also have to [regularly] report their level of performance.
- The utilities have to pay compensation to consumers if they deviate from the guidelines.

Where the regulator has laid down performance targets for electricity interruption parameters - for example, in case of a fuse-off or a fault call, the utility has to respond within a stipulated time period. On failure to do so, the utility has to compensate the consumer with a specified amount for say each hour or each day of the delay. The same procedure exists for complaints of Distribution Transformer (DT) failures also. This is available in the regulations on Standards of Performance (SoP). The following table shows the various time period deadlines for fault corrections and the compensation to be given by utilities to consumers according to SoP regulations in various states.

State	Fuse Off Call		DT failure			
	Urban Rural		Compensation	Urban	Rural	Compensation
	(hrs)	(hrs)	(Rs.)	(hrs)	(hrs)	(Rs.)
Andhra	4	12	50/default	24	48	100
Pradesh						
Delhi	3	8	NA	48	48	NA
Gujarat	4	24	25/6 hrs	24	72	25/6 hrs
Haryana	4	8	100/day	24	48	100/day
Maharashtra	4	24	50/hr	24	48	50/hr
Rajasthan	4	24	NA	48	72	NA
Uttar	4	8	50/default	24	72	50/default
Pradesh						
West Bengal	4	12	25/hr	72	216	25/hr

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Thus in West Bengal, a fuse off call has to be attended to, by the utility, in 4 hours in urban areas, and 12 hours in rural areas. On failure to do so the concerned power utility has to pay the consumer, an amount of Rs.25 for every hour of delay in attending to the complaint. In Maharashtra if a utility does not repair a burnt Distribution Transformer (DT) in a rural area in two days, then the utility is liable to pay Rs 120/- per day to EACH consumer connected to that DT. Assuming 500 consumers under a DT, utility penalty would be Rs 60,000 per day! If such penalties are implemented, the utility would be forced to dramatically improve the quality of its service.

The SoP regulations prepared for each state provides such measures to improve system reliability in the state. Though these regulations are present in many states, hardy any compensation has been paid to consumers till date. To ensure compliance of these regulations by the utility, it is necessary that the consumers are aware of these provisions and use them effectively, e.g. In Madhya Pradesh copies of such regulations have been attached to the bills sent to the consumers.

Consumer initiatives to monitor the quality of supply, number if interruptions etc. could be a step toward holding utilities accountable. In Maharashtra, Prayas has initiated an Electricity Supply Monitoring Initiative (ESMI). Under this initiative, specially developed data loggers, which are installed at different locations in an area record voltage as well as supply interruptions. This is a tool for consumers and regulators to get an idea of the ground reality and to increase the accountability of electricity utilities.

Voltage problems

What is a voltage problem?

The electricity that arrives at the consumer location is expected to have certain characteristics, which together define the 'Quality of power supply'. The important parameters are voltage and frequency. The utilities are supposed to supply power at 240 Volts and 50 Hz for 'low voltage use' (for example, domestic use). However, the voltage at which electricity is supplied tends to vary a lot (plus or minus 20-30%) and is a cause for concern for all types of consumers. This is because electrical appliances used by consumers operate best at the standard voltage. Frequency variations are usually within 1-3% and these are critical only for consumers running very big electrical motors. In this booklet, we will limit the discussion to voltage problems.

If the voltage at a particular point is more or less than the prescribed voltage for a long time, it is an indication of poor quality of supply. In India, poor quality of supply is widespread, especially in rural areas. For example, in 2003, even the high voltage transmission system in Madhya Pradesh was operating at lower than normal voltage for over half of the year. The situation at the consumer end would be much worse.

Why does this problem occur?

The main reason for low voltage is the growing demand and overloading of the transmission and distribution network. Poor planning (not providing sufficient capacitors or dysfunctional capacitors at substations) and bad maintenance (bad joints, lines touching trees etc) can also lead to low voltage at the consumer location. Overloading could be due to delay in increasing the capacity of distribution equipment even after the demand has grown or due the presence of un-authorised connections. High voltage can occur due to sudden reduction of load or due to some faulty operation of the distribution system. Problems of large fluctuations in voltage can be attributed to inadequate attention to maintenance by the utility.

In rural areas the problem is aggravated by long lines (transmission as well as distribution) and heavily understaffed utility divisions. Not connecting capacitors and use of substandard material for motor rewinding (because cost of the standard material is prohibitively high) reduces motor efficiency and power factor. If this is occurs extensively, it leads to low voltages.

What are the consequences?

Voltage problems lead to lower efficiency and reduction of the life of appliances. Voltage fluctuations that cause motor burn-outs are a regular feature in rural India. This leads to higher expenditure as often the farmers pay for replacements out of their own pockets. Very often, even transformer failures are not attended to in time and farmers have to resort to their own repair skills as delays in repairs are unaffordable especially in cropping seasons. Due to utility neglect, repair and maintenance work is often taken

up by farmers themselves, causing accidents which can be fatal. In Andhra Pradesh, 865 deaths due to shock were reported in 2006, out of which half were farmers and contract workers. This works out to be 17 persons dying each week! The situation in several other states is just as bad. The electricity company with support from the Electrical Inspector (an office of the Industry, Energy and Labour Department) is responsible for safety issues like loose wires, bad earthing, un-insulated wires etc. There should be public pressure to investigate accidents and allocate responsibility, to ensure that the electricity company takes measures to prevent such accidents.

Poor quality of supply has other effects too - consumers are unable to use better quality and efficient equipment; for example, low voltage conditions force consumers to use low efficiency incandescent bulbs instead of tube lights which need good supply voltage for operation.

How can this problem be addressed?

Better planning and operational practices by the distribution utility supported by consumer cooperation can reduce voltage problems. The current legal framework provides considerable space to address the issue of quality of supply. The 'Standards of Performance Regulations' prepared by the regulators lay down performance targets and benchmarks for the power utilities.

Comprehensive regulations on Standards of Performance (SoP) for distribution utilities have been prepared by most State Regulatory Commissions subsequent to the E-Act. These regulations cover many aspects of quality of supply and service.

For the indicators of 'quality of supply', many state regulations give a performance target to distribution utilities - for example, 'a voltage problem should be sorted out within a week if there is no network change involved'. Thus, the utility is required to rectify a problem within a stipulated amount of time. To ensure compliance, the regulations also direct utilities to compensate consumers if the performance target is not met, for example, 'a voltage problem should be sorted out within a week if there is no network change involved' - *Rs. 100/day to be paid to the consumer in case of default*. Thus, the utility is required to pay the consumer Rs. 100 for every additional day for which it does not rectify the problem. The regulations also specify overall performance benchmarks for the utilities; for example, 'voltage problems will be sorted out within a week if there is no network change involved *for 90% of the complaints*'. Thus, to sum it up, in most states, the utilities have to:

- 1. Rectify a 'Quality of Supply' problem within a specified time
- 2. Compensate the consumers for any defaults in adhering to performance targets
- 3. Ensure compliance with performance targets for most cases

In Maharashtra, Standard of Performance regulations specify that the distribution licensee should not permit the voltage to vary from the declared voltage by more than 6% (for low voltage consumers), without a written consent from the consumer, or a previous sanction of the Commission. The utility has to pay the consumer Rs.100 for every week for which the problem persists as

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long as the consumer claims compensation within 60 days from the date of rectification of the deficiency. However, currently the voltage regulations are not applicable beyond Mumbai in Maharashtra.

There is a long gap between making regulations and making them work satisfactorily on the ground. Community organisations should make use of these provisions and spaces which will inevitably lead to improving accountability of the utility and consequently improve service delivery to the consumers.

Quality of service

What is quality of service?

Quality of service indicates the goodness/ quality/value of various interactions that take place between consumers and the utility. For example, regularity and accuracy in meter reading, time taken to attend to faulty meters, regularity in issuing bills, handling billing complaints etc. indicate the efforts of the utility in preventing inconvenience to consumers and also their responsiveness in addressing consumer grievances. This aspect of service delivery is very important for poor consumers as bad service quality is very often the single reason for loss of access for poor consumers.

In this section, we cover different aspects of quality of service, including an overview of distribution franchisees and grievance handling mechanisms.

Why is quality of service so important?

Small rural consumers

In rural areas, sometimes many small hamlets make up one village. Even these hamlets may be far away from each other. Due to the difficulty in accessing these areas, meter reading in such cases, is often irregular. Thus, consumers are sent 'average bills' which do not reflect their actual consumption; billed amounts are calculated based on the average of previous consumption. This uncertainty in meter reading and billing is more difficult for the poor to absorb and very often leads to payment defaults and permanent disconnections. Sometimes, the first bill itself is sent almost 6 months late and has the cumulative amount of 6 months of consumption to be paid all at once by the consumer. Thus, sometimes, the first bill itself can be a beginning for the 'payment default' cycle.

Often there are serious errors in meter reading and/or bill calculation. Small consumers are assessed at a ridiculously large consumption - thereby raising an unreasonably high bill (say Rs 10,000). Normally (internal) grievance redressal procedures of the utility require consumers to pay at least a part of the disputed bill even before utility officials can hear the complaint. The poor obviously cannot pay the sum. There are also issues about bill adjustment for previous periods (supplementary bills) and sometimes adjustments are made for years together. Moreover, utility billing offices are located at large towns/ cities only which are not accessible easily by the poor. Bill adjustment may require significant paperwork, which is another barrier for the poor. The net result is that poor consumers suffer supply disconnection purely because of the utility's inefficiency. This leads to increase in theft, leading to another vicious cycle taking the sector downhill.

New connections

Delay in giving new connections is also a serious 'quality of service' issue. In some states the delay in giving new connections is extremely high - for example, in Rajasthan, the waitlist for agricultural connections exceeds a decade in some areas. In some subdivisions in the state, farmers who had applied for an agricultural connection in 1989 were still to be granted a connection till 2005.

In case of any such problem, consumers approach the local utility offices and usually consider the decision taken by the personnel in this office as binding and final. Consumers are unaware that there are more institutional provisions to protect them from such practices of the utilities.

What are the institutional provisions to protect consumers?

The E-Act itself has made provisions for the protection of consumers against potentially exploitative practices of the utilities; for example,

The E-Act, 2003 (Section 56)

- Allows the consumer to pay an amount equivalent to the average amount charged to him/her in the previous 6 months, if the bill issued by the utility is disputed.
- Also, the Act mandates the utility to give a 15 day notice before disconnecting a consumer in case of payment defaults. This notice has to be a separate correspondence (and not the monthly bill) sent by the utility to the consumer.

In addition to such legal protection, the National Electricity Policy encourages

- The use of alternative/new technology like pre-paid meters or limited load connections instead of regular meters to be used for connections in poor households. The use of such devices instead of regular meters can check the uncertainty faced by poor consumers in irregular metering and billing practices.
- Participation of existing local institutions in the power sector, including Panchayats, local authorities, NGOs etc. to help the utilities in shouldering the responsibility for Operation & Maintenance and cost recovery for electricity supply
- Establishment of new institutions to address the problem of quality of service e.g. franchisees.

The adoption of these policy directives by state regulators could potentially reduce the uncertainty with billing and metering experienced by many urban and rural poor.

Community leaders can advocate for proper checks and balances in the utility billing software - check the consumption on the current bill and compare it with the previous 12 months' average etc. On a broader scale, they can demand an independent audit of the utility metering and billing be done by Regulatory Commissions. Metering and billing is a crucial area and should get the maximum attention of civil society organisations working with the poor.

Distribution Franchisees

The E-Act 2003 and the Rural Electrification Policy promote the concept of franchisees (or contractors) of the existing licensed utility in the power sector. The franchisees are expected to buy bulk power from the utility and distribute it in their franchise areas. They are also expected to carry out the operation and maintenance of equipment in their areas and are in charge of revenue collection. NGOs, Panchayats, and other local institutions are encouraged to shoulder this responsibility. In many states, franchisees have a minimum role of metering, billing and revenue collection from consumers. Some examples are women's self help groups in West Bengal and gram vidyut pratinidhis in Karnataka. Regulations for quality of supply and service are applicable to the franchisee as well. This initiative might lead to improvement of the quality of both supply and service in the area largely depending on the terms of agreement between the franchisee and Distribution Company. There are already around 4000 franchisees functioning in 12 states. However, there is a risk of creating 'power lords' in the franchisee areas, where a small group of people (and not an institution) controls the supply of power, collection of revenue etc. Checks and balances to protect the consumers, especially the poor, from such exploitation should be the responsibility of both the utility and the regulator. It should be mandatory that:

- Contracts between franchisees and utilities be open for public scrutiny
- Utility should ensure that revenues are accounted for and there is no conflict of interest while selecting the franchisee.
- The community should have a right to seek review of contract / service quality.

Supply code and Standards of Performance Regulations

In addition to these provisions in the E-Act and policies, the regulator is expected to prepare Supply Code Regulations along with the Standard of Performance regulations (discussed before) which together deal with some important aspects of quality of service. For example, the utility has to release new connections within a stipulated amount of time. On failure to do so, the consumer has to be compensated for the delay. The regulations also deal with issues of metering and billing - they stipulate the billing cycles and the allowable average bills that can be sent to consumers etc. The following table shows some of the performance targets laid out by the Andhra Pradesh Electricity Regulatory Commission (APERC), for quality of service parameters.

Performance Indicator	Target Time	Compensation (Rs.)
Release of supply - no network change	30 days	50/day
Release of supply- Agriculture	30 days	50/day
Release of supply - network change, LT	30 days	50/day
Title Transfer	7 days	50/day
Re-connection - urban	4 working hours	50/default
Re-connection - rural	12 working hours	50/default

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Thus, in a case involving no network change, the utility has to release supply to a new connection within 30 days of the request after a completed application and payment is received for the same. On failure to do so, the utility has to compensate an amount of Rs.50 to the consumer for each day of delay beyond the stipulated time.

Some of the regulations made by the APERC regarding metering and billing issues are listed in the following table.

Performance Indicator	Target Time	Compensation (Rs)	
Replace faulty meters - urban/rural	15 days (after inspection)	50/day	
Bill complaint resolution	24 working hours	25/day	

Very often, poor quality of supply is due to utility personnel heavily overloaded with work. In western Maharashtra, during the monsoon, some areas become extremely inaccessible. However, the utility workers are expected to maintain the quality of service even in these difficult circumstances. In such situations, it is necessary that the utility has an adequate number of competent employees.

In spite of all these provisions for protecting consumers, there can be instances when disputes arise between the utility and the consumers. There are some institutional provisions to handle these situations too; however, to address the issues of poor consumers, these have thus far not proved very effective.

Grievance Redressal

Figure 5.2 shows the alternatives available to a consumer to take up complaints. The first step is to approach the electricity company's internal complaint handling section. If they do not solve the problem in time, consumer has two options. One is to pursue the complaint through the consumer forum, which handles all types of consumer complaints, including electrical. This approach is shown on the right side of the figure, with district, state and national consumer forums. These have been set up under the Consumer Protection Act 1986. The second option is to pursue the complaint through the complaint handling mechanism exclusively set up for electrical complaints after the E-Act 2003. This approach is shown on the left side of the figure with grievance forum and office of the ombudsman.



Setting up of Grievance Redressal Forum (GRF) and Ombudsman for distribution licensees mandatory.

Have to be set up within 6 months of the Act (June 2003) or 6 months of granting (new) license.

GRF and the institution of Electricity Ombudsman have been set up in most states. The GRF is a 2-4 member body. There may be one GRF per zone (as in MSEB with 12 GRFs) or one per circle for each company (2-3 per company, in Orissa) or it can be one per company (as in AP).

After exhausting the normal complaint procedure of the licensee, any consumer can approach the GRF. GRF regulations provide typical timeframes for disposing the complaint (45-60 days). Consumers can appeal to the Ombudsman, if they are not satisfied with the GRF. It is an important point to note that only the consumer can appeal against the decision of the GRF and not the utility. Ombudsman is expected to settle the dispute within about 3 months.

With good consumer participation, support of utilities and supervision by Regulatory Commissions, these can go a long way to bring consumer empowerment. However, these institutions have so far been accessible only to the non-poor urban consumers. The rural and urban poor still depend entirely on the utility to address their complaints. It is thus **necessary to make these institutions more poor friendly and accessible.** A more pro-active role by grievance forums and regulatory commissions will help to reach out to consumers and increase the effectiveness of these institutions.

⁸ These redressal mechanisms have been created in parallel to the judicial system to speed up the process. The links shown to the judiciary (Ombudsman to High Court and National Commission to Supreme Court) are expected to be on constitutional or jurisdictional issues.



-**0**-How can we make the sector pro-poor?

It is challenging to use the existing institutions to address the complaints of poor consumers. It is more challenging to go beyond the complaints, to make the sector policies and institutions pro-poor. Both challenges are important. The previous chapters discussed mostly about the first challenge. This chapter takes a look at the second challenge, by looking at the roles of the utility, regulatory institutions and the government.

In the pre-reform period, people were expected to have control over the affairs of the power sector through a chain of institutions - state legislature / parliament, power ministries, and the utilities which were under the control of these ministries. In the following chart, the right side shows Central Government and left side, the State Government. Our focus is mostly on state institutions.



It was expected that the electricity board would be accountable to the ministry, which, in turn, would be accountable to the elected representatives. These elected representatives were expected to ensure rational policies and efficient performance in the public interest, as they were accountable to the public through elections. In addition to this indirect accountability mechanism, there were other mechanisms such as Consultative Councils (an advisory body, appointed by the state government, consisting of representatives from unions, industry, agriculture and commerce) to provide feedback and inputs to the government.

Most of us are aware of the limitations of this structure. The Legislature did not have the time and resources to take up detailed analysis of the sector. The utility management was not very responsive, especially to the poor. It was very difficult to get any details on utility decisions like how tariffs were revised, or



how decisions on a new investment were taken. There was no accessible forum for airing individual complaints or criticism about the sector.

In the post-reform period certain elements of government's decisionmaking authority have been delegated to the regulatory institutions. These institutions are expected to function independent of the executive arm of the government. The decisions they take can include licensing of service providers, setting consumer tariffs, reviewing investment plans, approving power purchase, approving subsidy amount, reviewing and governing the performance of companies, setting guidelines for load shedding and monitoring consumer feedback. As this list suggests, these institutions are quite powerful. They have introduced standards of transparency in decision making (through information disclosure and participation in public hearings) that are far beyond those which existed in the power ministries.

At the same time, it is important to remember that effectively using regulatory institutions is only one step towards achieving good governance. Power sector planning, governance and operation involve many other institutions as well. Thus for a healthy power sector which takes into consideration the interests of the poor, it is necessary to democratise and strengthen the other institutions as well - i.e. those related to the utility, (consumer service centres, the grievance redressal forums) and the government (planning & policy making bodies). In this chapter, each of these institutions will be discussed.

The electricity companies (or utilities)

The electricity utility is the first and most immediate interface between the consumers and the power sector. It may be State owned or private. For most consumers, complaints and problems start and end with the local utility office. Thus it is necessary that the utility is sensitive to the problems of the poor.

There are certain duties of the utilities towards consumers that are mandated by the law and regulations. Most of these have been discussed in the previous chapters. Since the utility is the first interface with the consumers and thus the most important component in the power sector, it is important to note that every electricity utility has its own grievance redressal mechanism. It is the duty of the officer receiving a complaint to direct it through an appropriate mechanism. This internal grievance forum should be made easily accessible to consumers. If their grievance is not addressed by the utility, the consumer can approach the Consumer Grievance Redressal Forum.



In some states, there are practices like holding Lok Adalats (People's Courts) and sabhas (meetings) to address the problems of consumers, even though these are not mandatory. If these gatherings are used to also educate consumers about the various provisions available to them in the E-Act, policies etc., it can go a long way in empowering them to participate more effectively in the power sector.

Of all the institutions concerned with electricity in the state, the electricity utilities have the maximum resources - technical, financial and human. Thus, the capacity for the utility to improve the situation for the poor is the highest. However, under the current market oriented reforms, utilities are under pressure to become commercially viable. Therefore, their interest is to increase sales to the high tariff consumers, which in turn can happen by providing better services or rebates for large purchases. This is often done at the cost of the quality of service provided to poor consumers (which could be due to shortage of electricity supply, low budgets for operation and maintenance, shortage of staff etc.) This approach may be justified for the short term commercial viability of the utility. However, it can lead to long term disadvantages to society. Sustainable development cannot be achieved without poverty alleviation. Ensuring access to basic infrastructure is the first step towards ensuring livelihood security. For the country to achieve equitable and sustainable development, it is necessary that electricity utilities (along with other institutions) give equal importance to improving service delivery to the poor.

Although the utility and poor consumers are often considered as having opposite interests, there have been a few grass-root level programs initiated by some utility personnel, which have improved the situation not only for consumers, but also for the utility - for example, the Akshay Prakash Yojana implemented in Maharashtra. This program reduced load shedding for the consumers in the villages where it was implemented and also made almost 960 MW of power available to the utility at no additional cost. Thus the rural consumers actually helped to solve a problem which was not of their making in the first place. There are many such activities, e.g. a Compact Fluorescent Lamp (CFL) distribution scheme taken up by the utilities can work to the benefit of both consumers and the utility in the long run.

The consumer grievance redressal forum (GRF) and ombudsman

The E-Act, 2003 mandates the setting up of a Grievance Redressal Forum (GRF) and Ombudsman for the distribution utilities. These were mandated to be done within 6 months of the Act (June 2003) or 6 months of granting a new license. The GRF is explained in detail in Chapter 5 (Quality of Supply and Service). If made more accessible to consumers, these institutions ensure better electricity service to all consumers.

In some states civil society organisations have been successful in arguing for a consumer representative in the GRF. Though the inclusion of such a member has been a welcome step, in many states, these members do not have voting rights. This compromises the intended objectivity of the institution. The

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presence of an independent member in the GRF will not only ensure unbiased redressal of disputes but will also instil faith in consumers and encourage use of the institution. There should be sufficient number of GRFs in the state so that it is easy for the consumers to approach them. Consumers can approach the Electricity Ombudsman if the decision of the GRF is not favourable. The Ombudsman is an institution to be appointed by the State Electricity Regulatory Commission (SERC).

These institutions should serve to facilitate the process of grievance redressal and not just adjudicate the dispute between the utility and consumer. They should be sensitive to consumer issues and take pro-active steps to reach out to consumers to assess their problems and redress grievances.

Awareness about the GRF and Ombudsman as well as their functioning is currently very low. Community leaders could encourage consumers to file complaints with them and take up auditing of the complaints handled by them. They could also suggest that to build awareness about their functioning, proactive steps should be taken by the utility and these bodies.

Regulatory commissions

Regulatory Commissions have been set up in all States and they have taken over the functions of granting license to utilities, fixing consumer tariff, approving major utility investment and monitoring utility's quality of service. The new framework for the electricity sector has mandated many provisions towards transparency, accountability (to public) and participation (by people). It is important that these provisions are used by the community leaders working with the poor and not just by the large consumers (and their associations).

Consumer awareness

As discussed in the previous chapters, there are quite a few provisions in the Act, policies and regulations that mandate improved service delivery to all consumers. For some aspects of the power sector (like Quality of Supply and Service for example) efforts have been made towards protecting consumers from exploitation and uncertainty. However the awareness of these provisions is low and ground level implementation of these is poor. The only way to improve matters is to empower the consumers with information about their rights and legal provisions in place to protect them. If consumers know that the utility is liable to pay them compensation for every extra hour taken to fix faults, or for every delay in improving voltage problems, it can build pressure on utilities to improve the quality of supply and service. The National Electricity Policy states that the Central and State Governments and Regulatory Commissions should facilitate capacity building of consumer groups for effective representation before the Commissions (Section 5.13)

However, in terms of facilitating flow of information about their functioning to members of the public, the SERCs seem to have made little progress. For example, Very few SERCs have:



- 1. Prepared informative literature such as brochures or information packs (apart from the regulations and practice directions, which are legal documents) to communicate various procedures and issues to consumers.
- 2. Supported workshops or training courses for consumers or representatives of civil society organizations.
- 3. Provided libraries or reading rooms, where people can easily access all nonconfidential information available with the commissions.

As a result of this lack of facilitating mechanisms, the number of people seeking inspection of documents (apart from the utilities tariff filings) or copies of them is very small.

Efforts by a few SERCs to improve consumer awareness should also be pointed out.

Karnataka ERC

- Brings out Consumer Power, a bi-lingual monthly newsletter for creating awareness among consumers.
- Has published a compendium of cases decided in consumer forums (related to the power sector) for the benefit of the public.
- Has supported workshops for consumer awareness and conducted a consumer survey.
- Set up office of the consumer advocate

Orissa ERC

- Has published and widely distributed several information packs, a booklet on 'Frequently Asked Questions (FAQs)' and newsletters relating to the regulatory process.
- It conducts a series of Consumer Interface Programmes in different parts of the state.

Consumer Representation

It is necessary that SERCs set aside some amount for expenditure on consumer related activities with a sole focus on small consumers. At public hearings conducted by SERCs, industrial consumers participate in large numbers as they have the economic and technical capability to do so. However, the smaller consumers, who lack these advantages, are poorly represented. Pro-active efforts by the Commission to increase representation of the poor would not only help address their problems, but would also enhance the credibility and support for the regulatory process among various consumers.

Public Participation

Inviting public objections and conducting public hearings during the tariff revision process has become the norm for almost all SERCs, which is a good development. Except for a few SERCs all others conduct public hearings at multiple locations in their respective states. The number of objectors requesting

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personal hearings during tariff revision cases is more than 100 in most states. In terms of numbers, the public participation in these hearings seems to be reasonable and growing. These are progressive trends. However, participation in tariff revision processes alone, though necessary, is not sufficient to safeguard public interest. Typically, SERCs conduct several proceedings apart from these, e.g. approval of power purchases, load shedding timetables, capital investments etc. These proceedings are also very crucial as they affect consumers in many ways including affecting their tariff.

According to the regulations, all proceedings of the Regulatory Commissions are open to the public. However, many SERCs have not established a system of informing the general public about such proceedings. As a result, public participation is miniscule. Again, some SERCs have taken efforts to overcome this problem - for example, the Karnataka ERC informs the public through press briefings, and the results of technical validation sessions are also included in documents available to the general public. Also, the Maharashtra ERC has established a system whereby all notices of hearings and proceedings are sent to the four recognized consumer representatives at the same time that they are served on the petitioners and respondents. This approach has encouraged significant public participation in the regulatory process, resulting in attendance of consumer representatives in nearly all important proceedings before the MERC. It is necessary that such practices are adopted in other states as well, either through legal provisions or through pressure from civil society.

For enhancing public participation in the regulatory process, it is essential to make available as many documents in the local language as possible. This is crucial in the case of the electricity sector, which is, anyway, perceived as a very technical and complex subject by many consumer groups. Most SERCs have published a number of documents in the local language even if there is no such legal or policy requirement. Thus, civil society activists and community representatives can access technical and other information in most states in local languages.

However, it is necessary to inspect whether these provisions have improved (or are capable of improving) v situation for the poor. As discussed in the previous chapters, some of the issues faced by the poor can be addressed in the regulatory domain. The regulator is not specifically mandated to protect the poor; however, civil society can intervene in the regulatory process, sensitize the regulator to the problems of the poor towards addressing them. This is important since many techno-economic decisions taken by the regulators - from power purchase contract approvals to decisions about cross subsidy surcharges for open access consumers - have socio-political implications.

Transparency

The 'Conduct of Business Regulations' (CBRs) of most SERCs specify that all documents in the possession of the Commissions will be open to public and, if the Commission desires any document to be kept confidential, then it has to give reasons for doing so. Thus, information regarding the power utilities which was earlier unavailable to consumers, can now be accessed via the regulator.

A highly progressive step in the new legal framework for the power sector is

that the decisions of the regulators should be supported by reasons recorded in writing and should be available to all. The transparency and accountability in decision making has certainly improved due to this.

Accountability (of the utility and of the regulator)

Accountability of both the utility as well as the regulator is an important aspect of power sector governance. The electricity utilities (Government or private owned) provide a public service which is recognized as a "basic human need". Thus they have to be accountable to the people.

There have been some examples of regulators asking utilities to make information public that was earlier not in the public domain. Some Commissions like the Andhra Pradesh ERC directed the state utilities to make public the power purchase agreements (PPAs) that were signed before the RCs were established. The Maharashtra ERC, through its various orders, directed the state utility (the erstwhile MSEB) to make public some very crucial data and information. MERC directed the utility to make public over 10,000 pages of key documents, which include not only all PPAs signed by MSEB, but also other related contracts of these independent power producers (IPPs) such as financing agreements and construction contracts. However, except in most states, major additional information made available through the SERCs to the public is only available in the tariff filing made by the utilities. Other important information and documents such as PPAs and contracts signed before the formation of the RCs are still not available even for inspection. Civil society activists and representatives should use the regulatory route to demand availability of information in the public domain for scrutiny.

The regulators who make decisions that will affect access to electricity, quality of supply and tariff levels need to be accountable to the public. Since regulatory institutions have started functioning, it has become clear that they have to take certain political decisions while regulating the electricity sector. However, regulatory institutions are not elected, function independent of the executive, and are only indirectly and loosely accountable to the legislature. When it comes to administrative oversight to ensure the accountability of regulators, the state governments have fallen short. Many SERCs had not prepared regular annual reports though it is mandated in the E-Act. It is thus imperative that civil society exerts pressure on the Regulatory Commission to be more accountable.

Government

It is generally perceived that increased power of the regulatory institutions has resulted in distancing the power sector from political (government) processes. Thus people's access to the sector via elections has reduced. However, experience in the power sector in the last few years has shown that in spite of the push for market orientation and corporatisation, the government continues to have a key role in the power sector. There are visible political fall-outs of high electricity tariffs and high load shedding. For example, in Maharashtra, when the shortages became very acute, the Government had to step in and assure the public that expensive power would be bought to mitigate them.

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The Government is responsible for policy making and planning the sector. At the central level, the parliament, Ministry of Power, Planning Commission and Central Electricity Authority play this role. At the State level, the legislature and the Energy/Power Ministry play this role. Schemes like the Rajiv Gandhi Grameen Vidyutikaran Yojana, installation of large 4000 MW power projects etc. have been initiated by the Government. The Government plays important roles such selecting members for the Regulatory Commissions, providing budgetary support to the utilities etc.

In addition, there are regulatory institutions like Central Electricity Regulatory Commission (to look at multi State and national regulatory issues), Appellate Tribunal for Electricity⁹ (to hear appeals against SERC and CERC decisions), Consumer Courts and Judicial Courts.

Most of the Indian distribution utilities are Government owned. The Government is responsible for the appointment of personnel and to provide policy guidance to the Regulatory Commissions. Thus the broad framework of service delivery is decided by the Government. The Government also has a key role in ensuring that utilities and regulatory institutions translate these policies into action at the ground level. Without this vigilant role, even the best pro-poor policies may just remain on paper.

Therefore it is important that there is constant pressure on the Government to prepare pro-poor polices and remain vigilant to ensure that they are translated to ground level action. Civil society should use all possible avenues - public campaign, representations to legislatures and legal measures to keep up this pressure. The case of the amendment of the E-Act 2003 to remove the provision of cross subsidy elimination is an example of such a pro-poor change in law.

Summing up

The Electricity Act, Policies and Regulations have provisions that are welcome such as mandating transparency in the decision making process with participation of consumers. Civil society organizations, activists and community representatives should use these provisions to intervene actively in the regulatory process. Civil society interventions should not be restricted to public hearings for tariff revisions. There should be active intervention at hearings for power purchase, investment and quality of service, to project the issues of the poor.

Electricity Service delivery to the poor will remain neglected as long as there is no pressure from the community to improve it. These problems get magnified if there are gross inefficiencies in the sector. By ensuring transparency, accountability and participation in the sector, pressure on the utilities to address issues of the poor can be increased and inefficiencies can be reduced. In this context, Regulatory Commissions as well as institutions like the Consumer Grievance Redressal Forum and the Ombudsman provide excellent opportunities for those interested in advancing the interests of the poor.

⁹ The Appellate Tribunal for Electricity has jurisdiction throughout India and has been set up to hear appeals against the orders of the Regulatory Commissions. It is important to note that the Tribunal is much more difficult for poor consumers to access but it can change Regulatory decisions (like electricity tariffs) that affect the consumers.



Annexure

Agriculture and electricity issues and linkages

It is difficult to cover the various inter-linkages between agriculture and electricity in this booklet. In this annexure, we have attempted to identify some of these linkages and give an overview of their impacts.

The growth of agriculture (especially with the high yielding variety of crops since the green revolution) has been possible because of timely and adequate supply of water. As a result, groundwater irrigation started assuming a greater importance as compared to canal irrigation. Furthermore farmers had better control over water availability and requirements with ground water irrigation. This happened more in the North, particularly in Haryana and Punjab. Things were different in the South, seasonal rainfall and a lack of perennial rivers made groundwater tapping a prerequisite for irrigation.

This has led to an increase in the consumption of electricity by the agricultural sector. However, it should be noted that this increase in consumption can be attributed to only a small percentage of relatively rich farmers.

- 73% of the Indian population depends (directly and indirectly) on agriculture.
- About 50% of the Indian population are 'farmers'
- About 20% of these farmers (that is 10% of the population) have electric pumps
- Hence only 10% of population directly benefit from agricultural electricity use

Agriculture, having considerable socio-political importance has always been given special attention by the Government. In most states, agricultural consumption is un-metered; consumers pay a flat-rate tariff which is also highly subsidised. However, a large part of the subsidy is cornered by the larger, richer farmers. In Maharashtra for example, 80% of the farmers depend on rain-fed agriculture. Out of the remaining 20% farmers, those with large land-holdings (2% of the farmers) capture almost 20% of the subsidy.

This situation however leads to a cycle of problems. There is little or no benefit to small, marginal farmers. Improper targeting of agricultural subsidy has led to improper crop selection and competitive well deepening. This in turn has led to overuse of ground water and lowering of the ground water table which has a severe impact on the poor. In some states the situation is extremely dire.

- In Maharashtra the water tables are falling by 2-6 metres each year.
- In Punjab 79% of groundwater blocks are either overexploited or critical.
- In Haryana the number is 59%. Water tables in these regions have dropped from 10-15 meters to 400-450 meters.
- In Tamil Nadu 46% of blocks are either critical or overexploited.
- In Rajasthan the level is going down by 1-3 meters every year. Groundwater levels have fallen to such an extent in this state that "mining" is required to extract water which cannot be replenished by rain.

The overall impact of all these factors is that as water levels fall, power use increases to pump the same quantity of water out of the ground. The cost of well

deepening and replacing pumps by pumps of higher ratings is paid by pump owning farmers *who can afford this cost*. Thus, the cost increases while the agricultural output does not increase (or may actually decrease!). In effect, the power subsidy (or improper targeting of it) allows monopolization of ground water and perpetuates and increases the inequity among farmers.

It is also to be noted that some measures are being taken by various State Regulatory Commissions as well as power utilities and Governments to better target subsidies to improve the situation. For example, in Andhra Pradesh, big farmers do not get free power and farmers in drought prone areas are charged at a lower tariff. In Haryana, the tariff is linked to the depth of the water table in the region. In Karnataka the tariff depends upon the economic status of the farmer.

Many measures have been introduced to check and reduce agricultural consumption too. Schemes like 'single phasing' (providing power supply on single phase so that agriculture pumps do not operate, while the household lights can work), separate feeders for agricultural pumps (different from those supplying power to households), metering distribution transformers supplying pump-sets are examples. These help to get a better understanding of the actual agricultural consumption and can also enable restricted supply of electricity for pumps. Some states like AP, MP and UP have limited the hours supply (7, 6 & 10 hours/day respectively) to reduce water & power use.

It has also been realized that there is scope for improving efficiency of electricity use by the pump-sets. The current efficiency levels are 20-30% It is estimated that an improvement of 7-10% is possible by the use of efficient motors, installing capacitors, use of plastic pipes (instead of iron) and use of frictionless foot-valves (for open wells). In addition to reducing consumption, improving efficiency of the agriculture power use has an additional benefit of improved quality of power supply due to reduced losses and improved voltage levels. Better voltage in turn improves water discharge and reduces motor burnouts. The state of AP, has made implementation of these efficiency improvement measures mandatory to qualify for free power.

Another important issue is that proper measurement of agriculture power consumption is not available and it is often estimated. Since the agricultural consumption remains un-metered, there is a tendency to over-estimate, which helps the power utilities to hide their transmission and distribution losses and pilferage. Many have pointed out that the agriculture consumption is much lower than what is projected. The results of surveys in some states show that farmers consume 27 percent less than the utilities estimate—and that transmission and distribution losses are therefore correspondingly higher than the utilities claim (47 percent, compared with the official 33 percent). It is possible that a large part of the losses are due to pilferage by residential, commercial, and low-voltage industrial customers.

In addition to all these other concerns, agricultural consumers within the power sector sub-standard service. The power supply to agriculture is highly unreliable with frequent power cuts and low voltages. The poor quality of supply (i.e. poor voltage) leads to transformer and motor burnouts. To make things worse, very often farmers have to undertake repair and maintenance work of service connections and even transformers. Thus, even though the tariff is low, the farmer pays a high price for the power by having to replace motors very often and not having power supply when needed.

The supply to agriculture is limited to a few fixed hours throughout the day. Agriculture receives power mostly during the non-peak hours. Thus, the cost of supply to agriculture is actually low as they are cut-off from the grid when the most expensive power is used by the utilities.

It is not easy to address this complex problem. One of the suggestions has been the 'Peoples Plan Model' of T. L. Sankar (2002). He suggested that the cheaper sources of power (hydro and old thermal) could be reserved for agriculture. He also suggested that the agriculture consumers could be charged only the fuel cost of power generation. The fixed cost could be paid by those who use power during peak hours. He had worked out details of this model for AP and Karnataka, but no State has implemented it so far.

To improve the situation we need to comprehensively handle all the linked issues - improving power supply quality, targeting of subsidy, accounting power consumption, rationalizing the cropping pattern, improving irrigation techniques, optimizing ground water use, regulating farmers' input costs, ensuring fair price and market for agricultural produce and providing timely credit. There needs to be a concerted effort involving farmer associations, utilities, regulatory commissions and the State government.

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About Prayas Energy Group

Prayas is a registered charitable trust based in Pune. Prayas' activities cover four substantive areas of Health, Energy, Learning and Parenthood, and Resources and Livelihoods. The Energy Group of Prayas is mainly engaged in policy analysis in the electricity sector and capability building of civil society institutions.

The past work of Prayas Energy Group includes: analysis of the power purchase agreement between Dabhol Power Company and the Maharashtra State Electricity Board, analysis of the Sardar Sarovar Project, development of a least-cost, integrated resource plan (IRP) for the state of Maharashtra, analysis of agricultural power consumption and subsidy, and critique of the activities of the multilateral development banks in the energy sector in India, and organising numerous capability building workshops.

Since the last few years, the Energy Group has focused mainly on issues relating to power sector reforms and regulation. Its work in the areas of reforms and regulations include: study of the regulatory aspects of the Orissa model of power sector reforms; several policy and regulatory interventions at Central and State levels; and survey based report on the Electricity Regulatory Commissions.

All major publications, presentations, and reports of the Energy Group are available on Prayas website. Activities of Prayas are supported through project-based grants from charitable foundations. Electricity Service delivery to the poor will remain neglected as long as there is no pressure from the community to improve it. The problems in the sector get magnified if there are gross inefficiencies. By ensuring transparency, accountability and participation in the sector, pressure on the utilities to address issues of the poor can be increased and inefficiencies can be reduced. In this context, Regulatory Commissions as well as institutions like the Consumer Grievance Redressal Forum and the Ombudsman provide excellent opportunities for those interested in advancing the interests of the poor.

This booklet provides a framework for intervention towards improving electricity service to the poor. It gives an outline of the issues that the poor face and explains the key provisions in the Electricity Act 2003, National Policies and State Regulatory systems that can be used to address these issues. It hopes to support the efforts of leaders of mass organizations working with the poor and equip them to address their problems in the electricity sector. It includes tackling the immediate issues faced by the poor as consumers (delay in getting connection, high bills, harassment etc) as well as the broad issues of the sector that are important to them as citizens. This booklet also hopes to make the utility staff, regulatory staff, sector analysts and policy makers sensitive to the issues in the electricity sector that affect the poor.

Awareness and Action for Better Electricity Service an agenda for the community

For private circulation only Requested contribution: Rs.30



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