

CURRENT STATUS OF RURAL ELECTRIFICATION AND ELECTRICITY SERVICE DELIVERY IN RURAL AREAS OF INDIA

I. Status of Village Electrification in India:

As on 31st August 2013, a total of 32,227 villages of India are yet to be provided with electricity access. Out of a total of 593,732 inhabited villages as per the 2001 census, as on 31st August 2013, a total of 561505 villages were electrified.

Table 1: Status of Village Electrification in India¹

	Total inhabited Villages as per 2001 Census	Villages electrified as on 31/03/2013 as per new definition (Provisional)		Cumulative achievement as on 31/08/2013 as per new definition	%age of villages electrified as on 31/08/2013	Unelectrified villages as on 31/08/2013(V)
		No.	%			
India	593,732	560552	94.4	561505	94.6	32227

A village is deemed electrified, if 10 percent of all the households of the village has electricity access and if electricity provided to public spaces such as schools, panchayat officers, health centres, community centres and dispensaries.

Of a total of 29 states of India, only 9 states have achieved 100 percent village electrification as on the 31st August 2013. The following table gives an overview of the status of village electrification across the 29 states of India.

Table 2: Status of Rural Electrification in India²

Sl No	Percentage of Electrified Villages	Total Number of States	Names of the States
1	100%	9	Andhra Pradesh, Delhi, Goa, Haryana, Karnataka, Kerala, Punjab, Sikkim and Tamil Nadu
2	90-99%	12	Assam, Bihar, Gujarat, Himachal Pradesh, Jammu and Kashmir, Madhya Pradesh, Chattisgarh, Maharashtra, Mizoram, Rajasthan, Uttaranchal and West Bengal
3	81-90%	4	Jharkhand, Manipur, Meghalaya, Uttar Pradesh
4	71-80%	4	Arunachal Pradesh, Nagaland, Orissa, Tripura

Source: Central Electricity Authority

¹ http://www.cea.nic.in/reports/monthly/dpd_div_rep/village_electrification.pdf

² http://www.cea.nic.in/reports/monthly/dpd_div_rep/village_electrification.pdf

The target of 100 percent village electrification with 100 percent household electrification was fixed for 2009. However, as on 31st August 2013, 5.4 percent of India's villages are yet to be electrified.

While the above information is based on the 2001 village census data, the 2011 census shows a total of 645,856 villages in India³. Based on the 31st August 2013 village electrification figure of 561505 villages, the total number of un-electrified villages could be in the region of 84,351.

II. Status of Household Electrification:

The Census of India 2011 indicates that close to 43.2 percent of India's rural households continue to depend on Kerosene for lighting, while even today 0.5 percent of its population or close to 897,760 households does not have access to lighting at all.

The table below presents a comprehensive scenario of the sources of lighting in India, which is as per the Government of India Census, 2011.

Table 3: Sources of Lighting in India

2011 Census: Sources of Lighting: All India

	Absolute number			Percentage		
	Total	Rural	Urban	Total	Rural	Urban
Total number of households	246,692,667	167,826,730	78,865,937	100.0	100.0	100.0
Electricity	165,897,294	92,808,038	73,089,256	67.2	55.3	92.7
Kerosene	77,545,034	72,435,303	5,109,731	31.4	43.2	6.5
Solar	1,086,893	916,203	170,690	0.4	0.5	0.2
Other oil	505,571	407,919	97,652	0.2	0.2	0.1
Any other	493,291	361,507	131,784	0.2	0.2	0.2
No lighting	1,164,584	897,760	266,824	0.5	0.5	0.3

Source: Census 2011, Government of India
http://www.censusindia.gov.in/2011census/hlo/hlo_highlights.html

Despite the fact that as of 30th November 2012, as per records of Government of India, only 34,887 villages are yet to be electrified, we have a huge number of un-electrified households.

In terms of household electrification of states, there is not a single state or Union Territory in India which can talk of a 100 percent household electrification, though, 16 states/Union Territories of household electrification in the region of 90-99.7 percent. Six states have between 80 to 90 percent of all their households electrified. The national average for household electrification or meeting the lighting needs of households through electricity and solar energy is just 67.2 percent.

The following table tanks the states/union territories in terms of their status on household electrification and makes a comparison of their status in 2001 and 2011.

³ <http://censusindia.gov.in/2011census/Listofvillagesandtowns.aspx>

Table 4: Status of Household electricity needs being met through electricity and other means

Rank	State	Percentage of households using electricity as their primary source of lighting (%) (Census 2001)	Percentage of households using electricity as their primary source of lighting (%) (Census 2011)[1]
1	Lakshadweep	99.7	99.7
2	Delhi	92.9	99.1
3	Daman and Diu	97.8	99.1
4	Chandigarh	96.8	98.4
5	Puducherry	87.8	97.7
6	Goa	93.6	96.9
7	Himachal Pradesh	94.8	96.8
8	Punjab	91.9	96.6
9	Dadra and Nagar Haveli	86	95.2
10	Kerala	70.2	94.4
11	Tamil Nadu	78.2	93.4
12	Sikkim	77.8	92.5
13	Andhra Pradesh	67.2	92.2
14	Karnataka	78.5	90.6
15	Haryana	82.9	90.5
16	Gujarat	80.4	90.4
17	Uttarakhand	60.3	87
18	Andaman and Nicobar Islands	76.8	86.1
19	Jammu and Kashmir	80.6	85.1
20	Mizoram	69.6	84.2
21	Maharashtra	77.5	83.9
22	Nagaland	63.6	81.6
23	Chhattisgarh	53.1	75.3
24	Tripura	41.8	68.4
25	Manipur	60	68.3
	All INDIA AVERAGE	55.8	67.2
26	Madhya Pradesh	70	67.1
27	Rajasthan	54.7	67
28	Arunachal Pradesh	54.7	65.7
29	Meghalaya	42.7	60.9
30	West Bengal	37.5	54.5
31	Jharkhand	24.3	45.8
32	Odisha	26.9	43
33	Assam	24.9	37
34	Uttar Pradesh	31.9	36.8

Source: Census of India 2001 and Census of India 2011

In an urban context, electricity goes beyond meeting lighting needs. Electricity is used for heating and cooling purposes, for pumping water, for meeting cooking requirements, if not direct cooking, but in preparing dishes. Therefore from an urban household perspective, electricity and energy are more or less used as synonyms.

However, from a rural India context, electricity and energy are two very distinct issues, primarily because of the manner in which “electrified villages” has been defined in India Electricity Policies, but also because of the electricity supply to rural areas.

It is therefore pertinent to look at the sources of cooking and heating in households in India. Only 11.9% of India’s households have access to modern cooking and heating fuels, which include LPG/LNG, Electricity and Bio-gas sources. A good 87.7 percentage of households in rural areas do not have access to any modern sources of energy.

The following table gives a comprehensive picture of the fuel source for cooking and heating in India.

Table 5: Source of cooking and heating in India

	Absolute number			Percentage		
	Total	Rural	Urban	Total	Rural	Urban
Fire-wood	120,834,388	104,963,972	15,870,416	49.0	62.5	20.1
Crop residue	21,836,915	20,696,938	1,139,977	8.9	12.3	1.4
Cowdung cake	19,609,328	18,252,466	1,356,862	7.9	10.9	1.7
Coal, Lignite, Charcoal	3,577,035	1,298,968	2,278,067	1.4	0.8	2.9
Kerosene	7,164,589	1,229,476	5,935,113	2.9	0.7	7.5
LPG/ PNG	70,422,883	19,137,351	51,285,532	28.5	11.4	65.0
Electricity	235,527	118,030	117,497	0.1	0.1	0.1
Bio-gas	1,018,978	694,384	324,594	0.4	0.4	0.4
Any other	1,196,059	1,040,538	155,521	0.5	0.6	0.2
No cooking	796,965	394,607	402,358	0.3	0.2	0.5

Source: Census of India 2011.

III. All India tariff for rural electrification

The tariff for rural electrification varies from state to state, and also varies from metered supply to flat monthly tariffs.

The flat monthly tariffs vary from Rs. 30/- a month to Rs. 60/- per month and the metered supply varies from a low of Rs. 0.60 per kWh to a high of Rs. 3.11 a kWh.

The following table presents the tariffs across the major states of India.

Table 6: Rural Electricity Tariffs across States in India

State	Base tariff for Rural Consumers (Rs./kWh)
Arunachal Pradesh*	Rs. 2.30/kWh
West Bengal	Rs. 2/ kWh
Karnataka*	Rs. 2/kWh (0-30 units)
Jammu & Kashmir	Metered Rs. 1/kWh (0-30 units), unmetered Rs. 65/- for ¼ KW
Kerala*	1.55/kWh (0-40 units)
Haryana*	Rs. 2.63/kWh (0-40 units)
Sikkim*	Rs. 0.60/kWh (0-50 units)
Bihar	Unmetered Rs. 35/month, metered consumer Rs. 1.2/kWh
Mizoram	Metered Rs. 1/kWh (0-30 units), unmetered Rs. 20/month
Andhra Pradesh*	Rs. 1.45 (0-50 units)
Rajasthan	Rs. 1.95/kWh (0-50 units)
Gujarat	Rs. 1.50/kWh (0-30 units)
Madhya Pradesh	Metered Rs. 3.15/kWh (0-50 units), Unmetered Rs. 3/kWh (0-30 units)
Goa*	Rs. 1/kWh (0-60 units)
Orissa	Unmetered Rs. 30 for 1 KW, metered consumers Rs. 1.40 (0-100 units)
Chhattisgarh*	Rs. 1.80/kWh (0-100 units)
Uttarakhand	Metered Rs. 1.50/ kWh, unmetered Rs. 120/connection for hilly areas and Rs. 250/connection for other areas
Meghalaya	Metered Rs. 1.70/kWh, unmetered Rs. 60/connection/month
Manipur*	Rs. 2.60/kWh (0-100 units)
Maharashtra*	Rs. 2.75/kWh (0-100 units)

Punjab*	Rs. 3.11/kWh
Assam	Rs. 2.35/kWh (Jeevan Dhara category of consumers allotted 1kWh/day)
Himachal Pradesh	Rs. 0.70/kWh (0-50 units)
Jharkhand	Metered Rs. 1.10/unit, Unmetered Rs. 72/connection/month
Uttar Pradesh	Unmetered Rs. 125/connection/month, metered Rs.1/kWh
Delhi	Unmetered Rs. 175/month, metered Rs. 2.45/kWh (0-200 units)

- States where rural and urban domestic tariffs is the same

Source: Compiled from various State Electricity Regulatory Commission's website

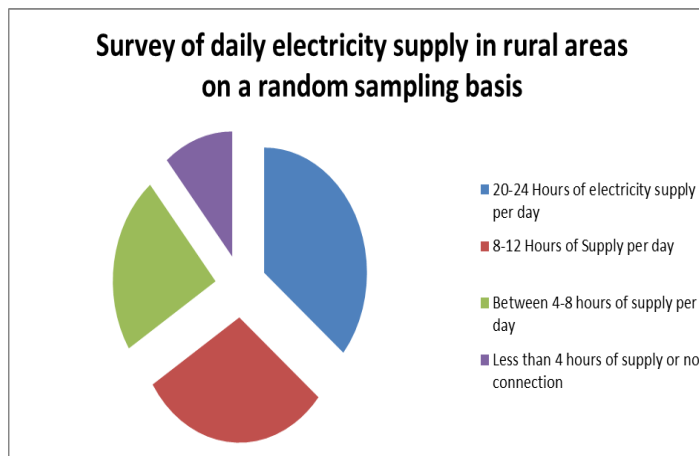
Vasudha Foundation along with Synovate conducted a survey on “ability and willingness to pay for energy services in rural areas in 2011, which also looked at the current tariffs, quality of electricity supply and also looked at the satisfaction of people with the current electricity services.”⁴

The survey covered a total of 240 villages covering 16 districts of 8 states of India. The states covered in the survey are Haryana, Uttarakhand, Jharkhand, Orissa, Karnataka, Kerala, Maharashtra and Gujarat.

Figure 1: Daily Electricity Supply data

A total of 30 villages in each of the districts were surveyed, covering a total household of 1919. Of the 1919 households surveyed, 1881 households had electricity connection, with only 108 households not being connected to the electricity supply.

36% of the total households receive electricity supply for 20 to 24 hours, while 30% of the households get less than 12 hours of electricity supply with 23% of the households getting less than 8 hours of supply and the balance of 11% had either not supply or were getting just less than 4 hours of supply every day.



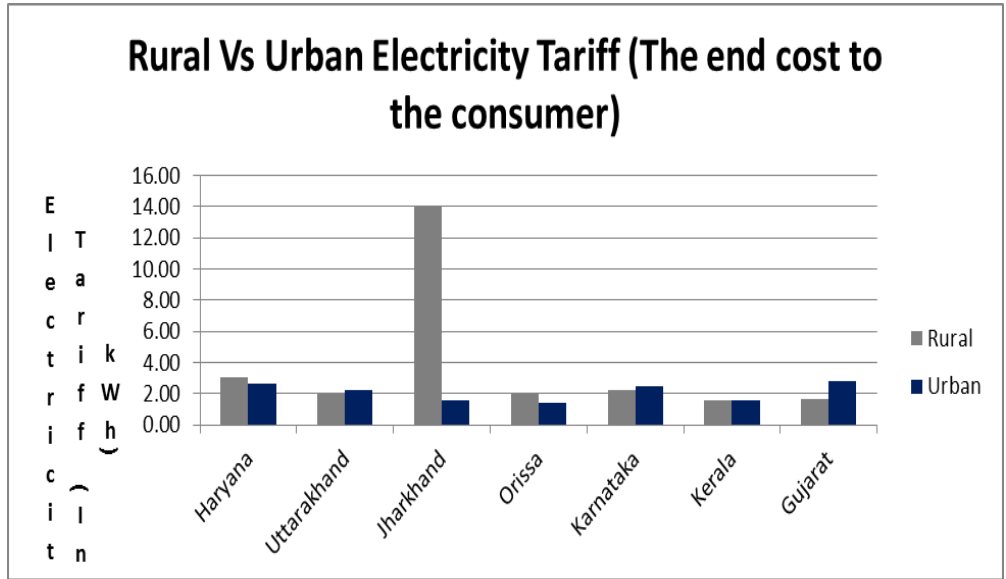
The villages which had 20 to 24 hours of supply are in the state of Kerala, Gujarat and Haryana, while those getting less than 12 hours of supply are in the state of Maharashtra, Uttarakhand and Karnataka and villages which were getting less than 8 hours of supply or no supply are in the state of Odisha and Jharkhand.

Based on this information and factoring in the current tariffs for rural consumers, the study assessed the levels of tariffs paid by a rural consumer in comparison to what a urban consumer pays

⁴ <http://www.vasudha-india.org/energy-services-to-the-poor-are-they-truly-subsidized/>

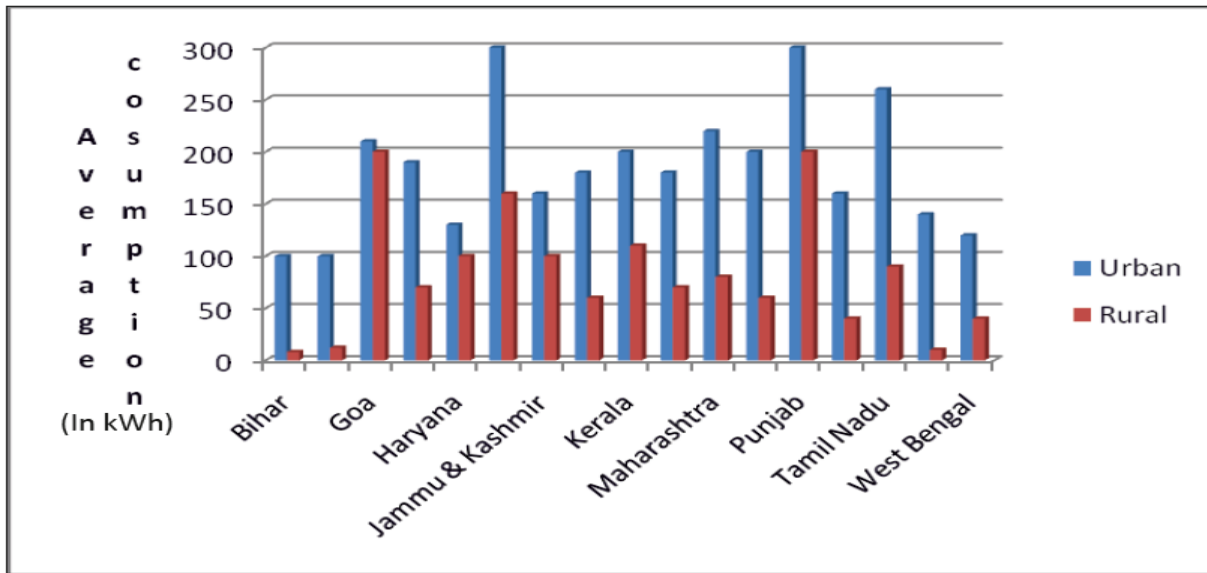
Figure 2 Rural Vs. Urban tariff

With the exception of Gujarat, Uttarakhand and Karnataka, the cost of electricity paid by the rural consumers was more than what the urban consumer pays. However, in the case of Uttarakhand and Karnataka, the cost which the rural consumer pays is marginally less than what the urban consumer pays, while it is substantially less in the case of the rural consumer of Gujarat. On the other hand, in some states, particularly, Jharkhand, the rural consumer typically pays 8 times more than what the urban consumers pay, while in the state of Orissa,



The following figure gives an overview of the power consumption in urban Vs. rural areas of select states.

Figure 3: Rural vs. Urban Power Consumption Pattern in some states

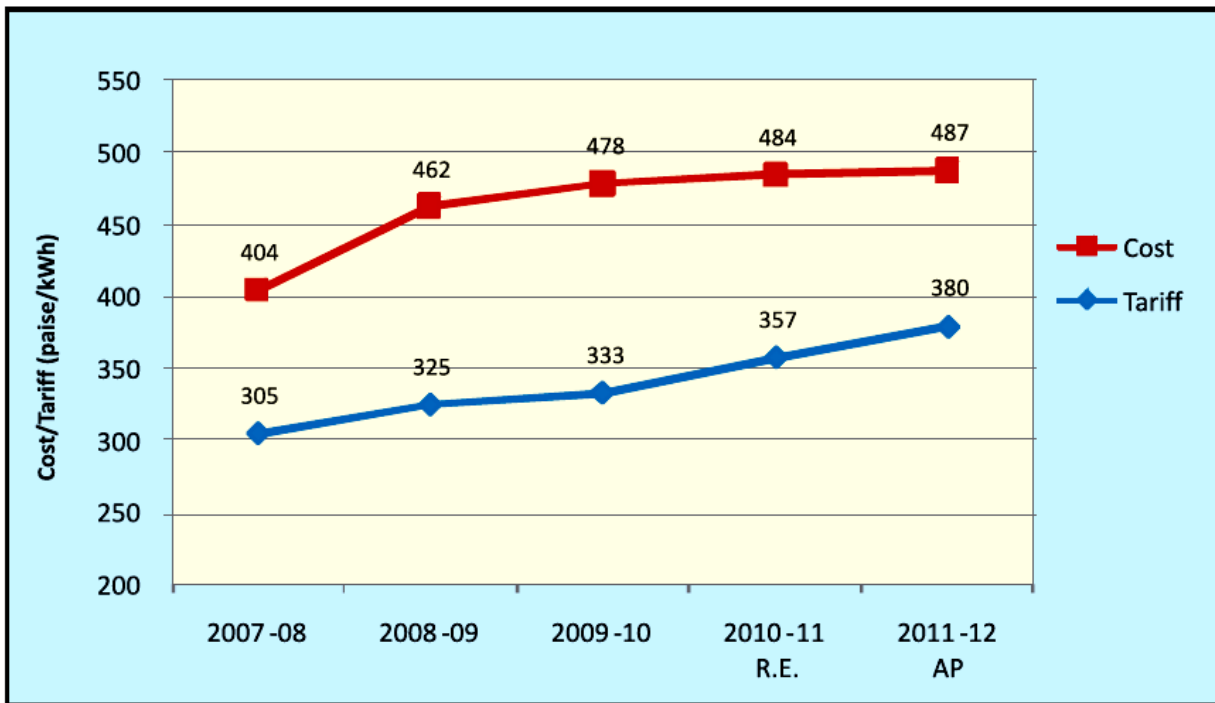


Source: Shifting of Goal Posts: A report on rural electrification, Vasudha Foundation

Following graph represent the average cost of power supply and the average tariff realized from 2007-08 to 2011-12.

Figure 4:

**Average Cost of Power Supply and Average Tariff Realized (paise/kWh)
from 2007-08 to 2011-12**



Note: R.E.- Revised Estimate

A.P.- Annual Plan

Source: Planning Commission Annual Report 2011-12.

The graph explains that although the average cost of power supply increased initially but in the later years it did not increase proportionately reaching a constant value over the years whereas tariff shows an increase over the years.

Table 6 shows average tariff for the sale of electricity for each state from 2007-08 to 2011-12.

The trend shows variation in the tariffs over the years in Jharkhand, Bihar and Nagaland where sometimes tariff has decreased and sometimes increased but the latest data (2011-12) shows the maximum value for the tariffs over the years in these states. For West Bengal and Uttar Pradesh, the trend has always shown increment in the tariffs. The all India average also shows increment over the last years. There is nothing sure about Orissa as the table do not show the tariff values for the last two annual plans.

Table 7:

AVERAGE TARIFF FOR SALE OF ELECTRICITY

(Paise/Kwh)

	2007-08 (Actual)	2008-09 (Actual)	2009-10 (Provi.)	2010-11 (RE)	2011-12 (AP)
I. SPU's					
1. Andhra Pradesh	254.15	251.60	260.79	280.87	291.52
2. Assam	427.55	491.56	472.03	486.42	512.97
3. Bihar	296.46	311.63	303.02	342.20	373.74
4. Chhatisgarh	339.87	337.01	287.23	301.64	307.83
5. Delhi	443.05	396.14	446.66		
6. Gujarat	337.31	417.84	405.71	394.82	398.41
7. Haryana	274.73	323.02	337.90	336.12	347.04
8. Himachal Pradesh	356.35	405.98	404.46	433.66	478.84
9. Jammu & Kashmir	254.78	234.45	242.14	270.09	270.09
10. Jharkhand	324.93	319.06	285.99	308.72	344.45
11. Karnataka	305.62	303.42	338.30	409.35	415.43
12. Kerala	350.61	379.96	337.93	348.28	349.21
13. Madhya Pradesh	301.45	319.56	311.88	348.70	365.52
14. Maharashtra	361.81	403.69	432.30	447.45	466.21
15. Meghalaya	297.90	371.02	419.74	385.46	411.38
16. Orissa	295.58	306.79	303.97		
17. Punjab	238.60	267.21	255.23	287.59	393.08
18. Rajasthan	328.44	315.65	305.05	310.31	305.30
19. Tamil Nadu	296.66	290.69	290.18	330.86	352.73
20. Uttar Pradesh	268.40	266.36	329.26	363.89	403.31
21. Uttrakhand	247.66	290.95	333.71	353.11	351.37
22. West Bengal	355.40	390.85	398.26	457.00	488.59
Average of SPU's	306.72	325.57	333.77	358.18	380.37
II. EDs					
1. Arunachal Pradesh	276.51	265.50	259.09	273.93	290.93
2. Goa	297.99	376.56	353.69	347.56	376.00
3. Manipur	306.57	405.30	342.42	320.03	320.32
4. Mizoram	292.28	326.11	287.46	315.51	334.17
5. Nagaland	270.88	332.62	278.21	290.02	301.44
6. Pondicherry	252.77	255.08	239.55	281.68	303.66
7. Sikkim	412.66	407.27	429.35	217.39	221.31
8. Tripura	296.53	387.74	325.24	324.82	364.17
Average of EDs	290.86	336.91	312.78	306.06	328.48
All India Average	306.46	325.76	333.44	357.33	379.56

Note: Delhi data is for NDPL Discom only

Source: Planning Commission Annual Report 2011-12.

Table 8: Following table shows average tariff for consumer categories wise.

CONSUMER CATEGORYWISE AVERAGE TARIFF, A.P 2011-12

(Paise/Kwh)

	Domestic	Commercial	Agri./ irrig.	Industrial	Rly. tractn.	Outside State	Overall average
I. SPU's							
1. Andhra Pradesh	282.56	616.33	32.10	418.02	445.21	1616.01	291.52
2. Assam	393.00	674.33	479.03	573.00	0.00	600.00	512.97
3. Bihar	229.65	611.89	80.97	544.57	618.59	383.98	373.74
4. Chhatisgarh	191.21	404.91	106.89	370.57	424.64	400.00	307.83
5. Gujarat	372.90	572.42	176.07	531.84	568.51	336.25	398.41
6. Haryana	380.96	467.18	37.69	461.21	460.33	0.00	347.04
7. Himachal Pradesh	307.30	546.39	0.00	418.68	0.00	750.00	478.84
8. Jammu & Kashmir	161.00	269.00	142.00	278.01	0.00	0.00	270.09
9. Jharkhand	103.44	516.03	58.79	481.76	1000.00	453.92	344.45
10. Karnataka	360.21	312.11	205.99	613.20	0.00	0.00	415.43
11. Kerala	200.00	767.07	109.89	427.12	397.88	0.00	349.21
12. Madhya Pradesh	383.91	688.55	301.51	498.22	526.07	0.00	365.52
13. Maharashtra	438.66	736.13	215.10	514.80	592.00	0.00	466.21
14. Meghalaya	333.98	529.72	176.66	502.94	0.00	117.11	411.38
15. Punjab	377.21	519.00	320.00	454.72	540.99	0.00	393.08
16. Rajasthan	378.26	541.52	122.12	465.13	386.49	281.23	305.30
17. Tamil Nadu	180.87	695.31	0.04	529.75	0.00	308.21	352.73
18. Uttar Pradesh	348.03	531.81	242.27	637.11	464.44	0.00	403.31
19. Uttrakhand	240.48	402.73	200.80	398.98	438.48	0.00	351.37
20. West Bengal	416.66	601.29	269.72	563.11	530.70	441.26	488.59
Average of SEBs	321.82	582.67	153.21	499.38	538.98	468.55	380.37
II. EDs							
1. Arunachal Pradesh	355.74	419.27	0.00	351.76	0.00	218.51	290.93
2. Goa	200.50	558.78	152.63	381.30	0.00	631.45	376.00
3. Manipur	260.02	300.20	204.19	297.45	0.00	400.02	320.32
4. Mizoram	233.67	460.19	0.00	402.91	0.00	439.02	334.17
5. Nagaland	240.00	380.16	0.00	300.00	0.00	400.00	301.44
6. Pondicherry	124.05	382.41	2.16	385.50	0.00	300.00	303.66
7. Sikkim	160.00	260.00	0.00	255.00	0.00	250.00	221.31
8. Tripura	316.00	484.00	333.35	553.50	0.00	352.62	364.17
Average of EDs	209.96	444.96	66.37	378.12	0.00	354.61	328.48
All India Average	320.03	581.04	153.13	497.11	538.98	451.57	379.56

Source: Planning Commission Annual Report 2011-12.

As can be read from the table Jharkhand has the least domestic tariff among the 6 states (Jharkhand, Bihar, Orissa, West Bengal, Uttar Pradesh and Nagaland) whereas Nagaland has no tariff on Agriculture/Irrigation for consumers. West Bengal has the highest tariff in both the categories among the 6 states. All India average consumer tariff for Domestic and Agriculture/Irrigation categories which represent the real rural scenario is still less amongst all.

We can also have a look at the subsidy to Agriculture and Domestic Sector from 2007-08 to 2011-12 in the table 8 given below

Table 9:

Subsidy to Agriculture and Domestic Sector & Uncovered Subsidy

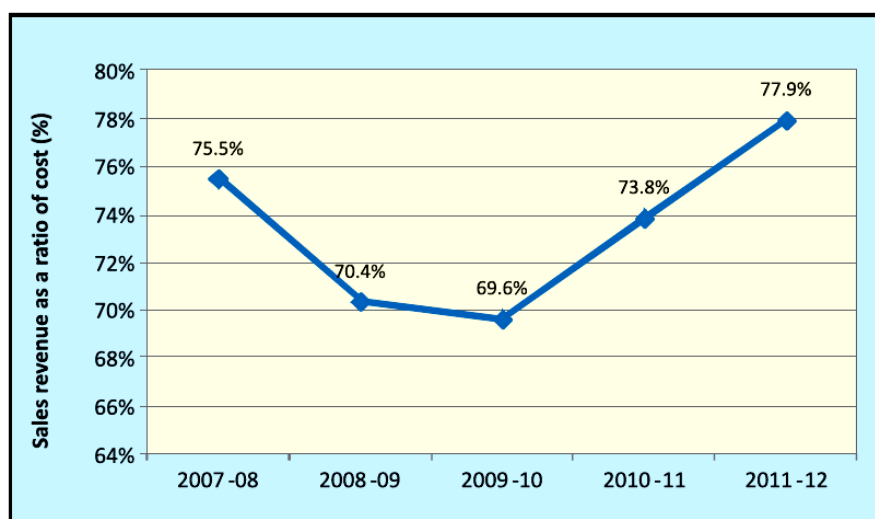
(Rs. crore)

	Subsidy to Agricultural Consumers	Subsidy to Domestic Consumers	Subsidy on Inter-state Sales	Gross Subsidy	Subvention received from State	Net Subsidy	Surplus from Other Sectors	Uncovered Subsidy
2007-08	33,363	15,767	-1,124	48,005	17,032	30,973	8,962	22,011
2008-09	39,391	21,919	-1,529	59,781	23,049	36,731	-3,694	40,426
2009-10	44,738	23,744	1,333	69,815	24,453	45,361	-2,780	48,141
2010-11 R.E.	44,599	24,093	587	69,279	18,210	51,069	39	51,030
2011-12 AP	45,561	25,006	461	71,028	17,684	53,343	4,754	48,590

The subsidy has increased in both the sectors over the years.

Figure 5:

Sales Revenue as a Ratio of Cost from 2007-08 to 2011-12



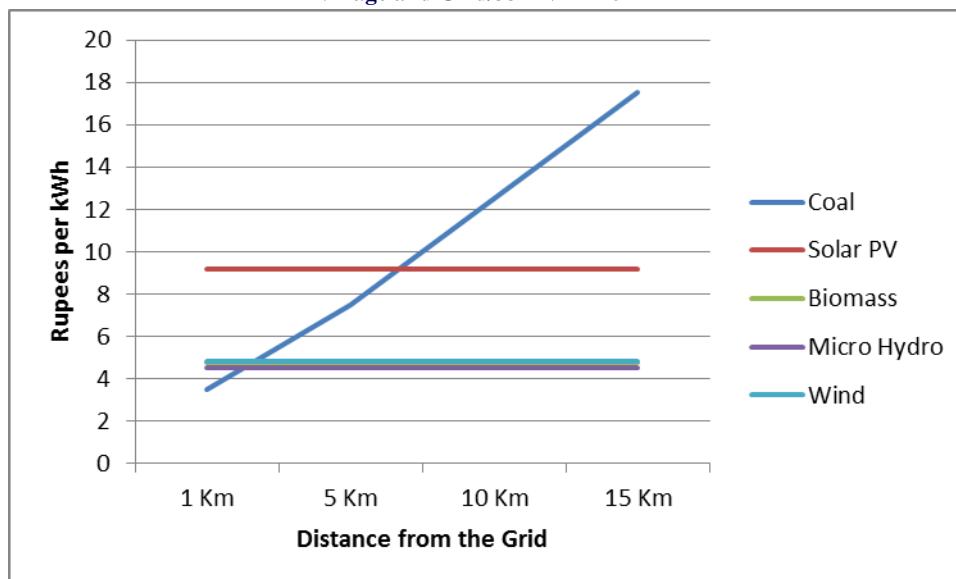
IV. Cost to Utility Analysis

The delivery cost of electricity to any location through grid depends on three components:

- Cost of generation of electricity at the bus bar of the centralized plant
- Cost of transmitting electricity through the transmission network
- Cost of distribution⁵.

The following graph and table explains the supply costs from various sources of electricity and includes all the factors above explained that add up to the total cost of supply.

Figure 6: Generation, transmission and distribution costs based on distance between Village and Grid/33 KVA line



Source: Shifting of Goal Posts: A report on rural electrification, Vasudha Foundation

Table 10: Cost Comparison of various sources of Electricity

Source of Fuel	Generation Cost per kWh (Rs.)	Transmission Infrastructure Cost Per Km for a load of 100kW	Other Maintenance costs/distribution on infrastructure etc (per kWh)	Total Cost of Generation per kWh per km	Total Cost of Generation per kWh at a 5 Km distance from Grid/33KVA line	Total Cost of Generation per kWh at a 10 Km distance from Grid/33KVA line	Total Cost of Generation per kWh at a 15 Km distance from Grid/33KVA line	Life of the Unit
Coal	Rs. 2.00	Rs. 1	Rs. 0.50	Rs. 3.50	Rs. 7.50	Rs. 12.50	Rs. 17.50	30 years
Solar PV	Rs. 9.00	Nil	Rs. 0.20	Rs. 9.20	Rs. 9.20	Rs. 9.20	Rs. 9.20	25 years
Biomass	Rs. 4.25	Nil	Rs. 0.50	Rs. 4.75	Rs. 4.75	Rs. 4.75	Rs. 4.75	15 years
Micro Hydro	Rs. 4.20	Nil	Rs. 0.30	Rs. 4.50	Rs. 4.50	Rs. 4.50	Rs. 4.50	25 years
Wind	Rs. 4.50	Nil	Rs. 0.30	Rs. 4.80	Rs. 4.80	Rs. 4.80	Rs. 4.80	25 years

Sources: (1) Shifting of Goal Posts: A report on rural electrification, Vasudha Foundation;

(2) <http://www.climateparl.net/cpcontent/Publications/RE%20Briefing%20Paper%203%20-%20Costs.pdf>

⁵Research Paper: Providing electricity access to remote areas by M R Nouni, S C Mullick and TC Kandpal, Science Direct publication, Hansen and Bower, 2003 etc.

It is evident from the figure 5 that even at a distance of 5 Kms from the Grid to a village, the cost of generation from micro and mini hydro systems are more or less the same as the costs per kWh from coal fired grid based power plants; and at a distance of 7.5 km solar PV systems cost the same to generate 1kWh of electricity as coal from the grid to a village.

These costs have taken into account very conservative plant load and efficiency factors for all renewable energy based systems, while it has taken the lowest current costs for coal based generation.

Economic analysis⁶

Kerosene and electricity are the main fuels used for lighting by Indian households, with a significant urban-rural disparity. About 42 percent of rural households use kerosene for lighting. By contrast, about 93 percent of urban households use electricity for lighting and only about 6 percent use kerosene. On average, a rural household receives six hours of electricity supply from the grid during the off-peak period (usually afternoon and night). Assuming that the grid can supply enough electricity to meet the NEP objectives of supplying one unit per day to every household, it implies a monthly consumption of 30kWh. In addition, it is estimated that a typical rural household uses at least one kerosene lamp as a backup for at least four to five hours during peak hours of the evening. Thus, the cost of lighting a rural household includes the cost of grid supply and the cost of kerosene.

For this analysis, the economic cost is Rs. 3.08/kWh, the cost of generating electricity from coal plants. The cost does not include externalities such as pollution. While the India average AT&C loss in 2009 was 25 percent, for the purpose of estimating the economic cost, the loss is 15 percent. This is the target level to be achieved by utilities under the Restructured-Accelerated Power Development and Reforms Program (R-APDRP) during the XIth Plan (2007-12). Adding the transmission cost of Rs 0.20/kWh and the distribution cost of Rs. 0.20/kWh, the cost of delivered electricity is Rs 4.02/kWh. With crude costing about US\$80 per barrel, the cost of kerosene becomes Rs 48 per liter in India. Thus, the total cost is Rs 376 per month, which implies a unit cost of Rs 10.63/kWh.

Commercial and industrial consumers usually use diesel generators as a back-up during grid outages. The cost of electricity from such generators is Rs 18/kWh (if the price of diesel is Rs 45/liter).

V. All India status on power supply to rural areas – outages and power cuts

To substantiate the findings of the study conducted by Vasudha Foundation, we also looked at the electricity demand – supply status, based on the Load Generation Balance Report of the Central Electricity Authority.

The table below shows that in the year 2011-12, all the regions of India had a fairly large shortfall in supply with respect to demand for electricity. The all India shortage of electricity supply was 8 percent in relation to the demand.

Table 11: Electricity Demand vs. Supply Status in India (2011-12)

⁶ World Bank Report “Empowering Rural India: Expanding Electricity Access by Mobilizing Local Resources”, 2010.

Region	Energy				Peak			
	Requirement	Availability	Surplus / Deficit (-)		Demand	Met	Surplus / Deficit (-)	
	(MU)	(MU)	(MU)	(%)	(MW)	(MW)	(MW)	(%)
Northern	276,121	258,382	-17,739	-6.4	40,248	37,117	-3,131	-7.8
Western	290,421	257,403	-33,018	-11.4	42,352	36,509	-5,843	-13.8
Southern	260,302	237,480	-22,822	8.8	37,599	32,188	-5,411	-14.4
Eastern	99,344	94,657	-4,687	-4.7	14707	13,999	-7,08	-4.8
North-Eastern	11011	9,964	-1,047	-9.5	1,920	1,782	-138	-7.2

Source: Central Electricity Authority, Load Balance Generation Report (2012-13)

While the national average of deficit power supply with respect to demand was 8.8 percent, in some months, it was as high as 11- 13 percent.

The burden of the shortage of power supply with respect to demand is currently being imposed on rural consumers.