

POWER

Overall Performance during 2007-08

9.6 Electricity generation by power utilities during 2007-08 was targeted to go up by 7.2 per cent to 710 billion KWh. The growth of power generation in April-December 2007 was lower than the targeted growth rate. While growth in all three segments, that is, thermal, hydro and nuclear generation, slowed down, nuclear power generation, in particular, showed the sharpest decline during the current year in comparison to the corresponding period last year (Table 9.2).

Power deficit

9.7 The deficit in power supply in terms of peak availability and of total energy availability during the current year was 14.8 per cent and 8.4 per cent, respectively. While shortages are being experienced by each region, they are more acute in the North-Eastern and the Western Region. (Table 9.3)

9.8 In the case of the thermal power sector, the State, Central and private sector plants reported a plant load factor (PLF), a measure of efficiency, of 70.2, 85.4 and 92.5 per cent, respectively, during

Figure 9.1 Growth in GDP and power generation

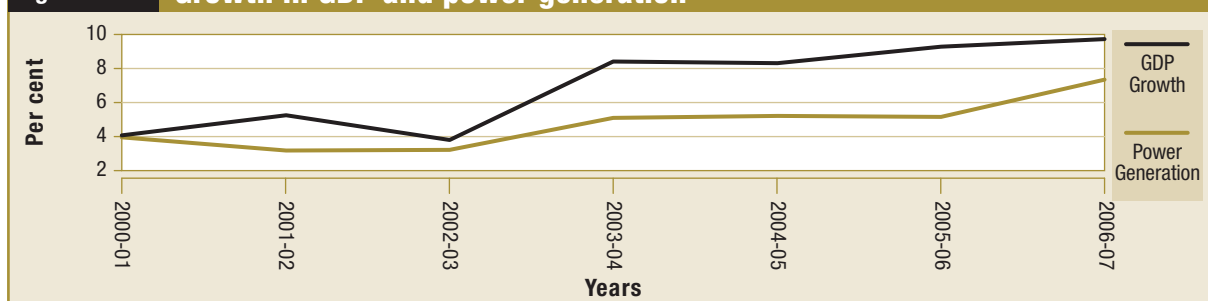


Table 9.2 Power Generation by Utilities (Billion kWh)

Category	2005-06	2006-07	April-December		Growth ^a (%)	
			2006	2007	2006	2007
1. Power Generation ^b	617.5	662.5	493.3	525.9	7.5	6.6
i) Hydro-electric	101.3	113.4	91.8	100.7	13.8	9.8
ii) Thermal	497.2	527.6	385.6	407.4	6.1	5.7
iii) Nuclear	17.2	18.6	13.6	12.8	3.0	(-) 5.7
Memorandum Item						
PLF in %	73.6	76.8	75.3	77.2		

^a April-December;

^b Excludes generation from captive and non-conventional power plants and thermal power plants below 20 MW units and Hydro power plants below 2 MW but includes import of power from Bhutan.

Table 9.3 Power supply position – all-India

Period	Peak Demand	Peak met	Peak Deficit/ Surplus	Peak Deficit/ Surplus	Energy Requirement	Energy availability	Energy Deficit/ Surplus	Energy Deficit/ Surplus
	(MW)	(MW)	(MW)	(%)	(MU)	(MU)	(MU)	(%)
9th Plan end	81,555	71,262	-10,293	-12.6	5,22,537	4,83,350	-39,187	-7.5
2002-03	81,492	71,547	-9,945	-12.2	5,45,983	4,97,890	-48,093	-8.8
2003-04	84,574	75,066	-9,508	-11.2	5,59,264	5,19,398	-39,866	-7.1
2004-05	87,906	77,652	-10,254	-11.7	5,91,373	5,48,115	-43,258	-7.3
2005-06	93,255	81,792	-11,463	-12.3	6,31,757	5,78,819	-52,938	-8.4
2006-07	1,00,715	86,818	-13,897	-13.8	6,90,587	6,24,495	-66,092	-9.6
Apr-Dec 2007	1,06,624	90,793	-15,831	-14.8	5,43,394	4,97,793	-45,601	-8.4

Source: Central Electricity Authority's (CEA) Power Scenario at a Glance (January 2008)

Table 9.4 Thermal plants load factor

(figures in per cent)

Category	2002-03	2003-04	2004-05	2005-06	April-December		
					2005	2006	2007
i) State Electricity Boards (SEB)	68.7	68.4	69.6	67.1	64.9	69.5	70.2
ii) Central Sector	77.1	78.7	81.7	82.1	80.3	82.2	85.4
iii) Private Sector	76.9	80.5	85.1	85.4	86.7	88.2	92.5
REGIONS							
Northern	75.4	76.3	77.1	76.8	75.0	79.1	80.2
Western	75.8	75.1	78.6	76.2	74.5	75.8	79.5
Southern	86.4	83.4	84.1	78.2	75.3	80.8	81.8
Eastern	52.1	56.9	60.4	64.6	63.2	67.7	68.6
North-Eastern	14.8	14.0	15.0	16.1	16.2	16.1	18.6
All-India	72.2	72.7	74.8	73.6	71.5	75.3	77.2

Source : Ministry of Power

April-December 2007-08. The PLF in each of these sectors as well as in every region has improved over time. However, there is a marked variation across the regions (Table 9.4).

Coal and gas input for the power sector

9.9 The power sector is a major consumer of coal using about 78 per cent of the country's coal production. Coal-fired thermal units account for around 62.2 per cent of total power generation in the country. Thus, coal continues to be the mainstay for the power sector.

9.10 The total consumption of coal by the power sector in 2006-07 was 302.5 million tonne (MT). Of this, about 9.7 MT was imported in 2006-07. About 7.3 MT of coal has been imported in 2007-08 (up to December 31, 2007). Apart from bridging the demand - supply gap, blending of imported high quality coal with high ash domestic coal helps thermal power stations to adhere to the environmental stipulations of using coal with less than 34 per cent ash content (Table 9.5).

9.11 Out of the total installed generating capacity in the country, about 10.5 per cent

(i.e., 14,691.7 MW), is based on gas or liquid fuel (excluding diesel). The supply of gas to power stations that use gas as the primary fuel remains inadequate. Commitments of gas allocations made to power stations in the past are not being fulfilled, thereby leading to loss in generation (Table 9.6).

Eleventh Five Year Plan Capacity Addition and Policy Framework

9.12 Electricity is in the concurrent list in the Constitution. The National Electricity Policy (NEP), 2005 recognizes electricity as a "basic human need" and targets a rise in per capita availability from 631 units to 1,000 units per annum by the end of 2012. To fulfill the objectives of the NEP, a capacity addition of 78,577 MW has been proposed for the Eleventh Five Year Plan. The power sector is expected to grow at 9.5 per cent per annum (Table 9.7).

9.13 A number of projects envisaged for the Eleventh Five Year Plan have made steady progress, with most of these in a position to be commissioned well within the Plan period. The status of placement of orders for the main plant (thermal projects) and main civil works (for hydro projects) is given in Table 9.8.

Capacity addition during 2007-08

9.14 Based on the status of various projects, the target for 2007-08 was fixed at 12,039 MW, of which 7,263 MW has been commissioned up to January 31, 2007. It is expected that the total capacity addition during the current financial year

Table 9.5 Coal consumption and imports by power stations (MT)

Year	Consumption	Imports
2003-04	263.6	3.4
2004-05	277.7	4.5
2005-06	281.3	10.4 ^a
2006-07	302.5	9.7

^a Out of total Import of about 11.22 MT.

Table 9.6 Trends in gas availability in the power sector

Year	Required ^a at 90% PLF (MMSCMD)	Gas supplied (MMSCMD)	Shortfall (MMSCMD)	Estimated generation loss (BU)
(1)	(2)	(3)	(4) = (2) - (3)	(5)
2001-02	46.31	24.33	21.98	36.10 ^b
2002-03	48.26	25.12	23.14	38.00 ^b
2003-04	49.25	25.62	23.63	21.69 ^c
2004-05	49.73	30.70	19.03	23.71 ^c
2005-06	53.38	35.37	18.01	23.88 ^c
2006-07	61.18	35.10	26.08	26.33 ^c
Apr.-Nov. 2007	65.69	36.31	29.38	21.79 ^c

^a Normative gas requirement at 90 per cent PLF estimated based on GVC= 9000 Kcal/SCM (except for Ramgarh CCGT for which GCV is 4150 Kcal/SCM), station Heat Rate- 2900 Kcal/kWh for open cycle and 2000 Kcal/kWh for combined cycle.

^b Generation loss calculated by considering the demand-supply gap at 90 per cent PLF, Gross Calorific Value of gas = 9000 Kcal/SCM, Station Heat Rate = 2000 Kcal/KW hr. and no generation made using liquid fuels.

^c Generation loss due to shortage of gas based on operation of power plant at 90 per cent PLF.

BU- Billion Units

Note: MMSCMD- million metric standard cubic metre per day.

would be 10,821.8 MW with thermal, hydro and nuclear accounting for 8,015 MW, 2,587 MW and 220 MW, respectively.

9.15 Power plants using super-critical technology have a higher thermal efficiency of about 40 per cent as compared to 38.6 per cent for sub-critical units of 500 MW units or less. At present, all the operating thermal power units are sub-critical units. Six super-critical units of 660 MW of NTPC Ltd, at Sipat (3 x 660) and Barh (3 x 660) are at an advanced stage of construction, and the first super-critical unit is expected to be commissioned during 2008-09.

Ultra Mega Power Projects

9.16 The Government of India launched an initiative for development of coal-based Ultra Mega Power Projects (UMPPs), each with a capacity of 4,000 MW or above. The projects will be awarded to developers on the basis of tariff-based

competitive bidding. To facilitate tie-up of inputs and clearances, project-specific shell companies have been set up as wholly-owned subsidiaries of the Power Finance Corporation (PFC) Ltd. These companies would undertake preliminary studies and obtain clearances relating to water, land, fuel, and power offtake tie-up prior to award of the project.

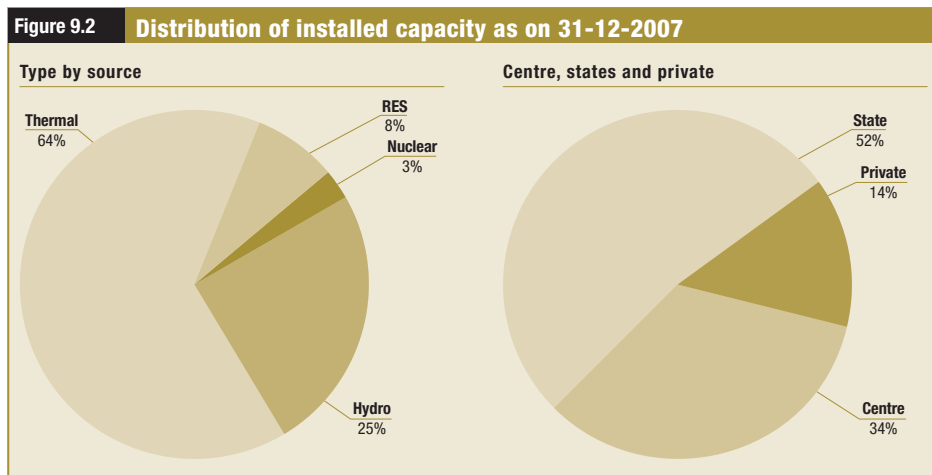
9.17 Originally, nine sites were identified by CEA in nine States for the proposed UMPPs. These include four pithead sites, one each in Chhattisgarh, Jharkhand, Madhya Pradesh and Orissa, and five coastal sites, one each in Andhra Pradesh, Gujarat, Karnataka, Maharashtra and Tamil Nadu. It is proposed to set up pithead projects as integrated projects with captive coal mines. The Ministry of Coal has allocated captive coal mining block(s) for Sasan UMPP in Madhya Pradesh, for Orissa UMPP (except for Chaturdhara block), for Tilaiya UMPP in Jharkhand and for Chhattisgarh UMPP. For the coastal projects usage

Table 9.7 Eleventh plan power capacity addition targets (MW & per cent)

Sector	Hydro	Thermal	Nuclear	Total (MW)	Share (%)
Central	9,685	26,800	3,380	39,865	50.7
State	3,605	24,347	0	27,952	35.5
Private	3,263	7,497	0	10,760	13.8
Total	16,553	58,644	3,380	78,577	
Share (%)	21.1	74.6	4.4	100	

Table 9.8**Status of Eleventh Five Year Plan capacity addition (MW) (As on Jan. 31, 2008)**

Status	Central	State	Private	Total
Commissioned	2,230	4,783	250	7,263
Under Construction	27,945	14,337	8,578	50,860



of imported coal is envisaged. The UMPP projects would help lower the cost of power to consumers and reduce emissions.

9.18 The bidding process in respect of Sasan, Mundra and Krishnapatnam UMPPs has been completed. M/s. Tata Power has been awarded the Mundra project at Rs. 2.26 per KWhM/s. Reliance Power Ltd. has been awarded Sasan and Krishnapatnam UMPPs at Rs. 1.196 per KWh and Rs. 2.33 per KWh, respectively. The SPVs of Sasan, Mundra and Krishnapatnam UMPPs have been transferred to the successful bidders. The bidding process in respect of Tilaiya UMPP has been initiated by the SPV, i.e., Jharkhand Integrated Power Ltd. The RFQ stage is over and over 13 bids received are under evaluation.

Plan for development of hydro potential

9.19 India is endowed with an estimated hydro power potential of more than 1,50,000 MW. However, only 21.14 per cent of the potential has been developed till date and 9.53 per cent is being developed. The main reasons for the slow development include difficult and inaccessible potential sites, difficulties in land acquisition, rehabilitation, environmental and forest-related issues, inter-State issues, geological surprises and long gestation period. Private sector participation is therefore negligible but has been increasing in the recent past. There are 10 Schemes with an installed capacity of 3991 MW under construction while 67 Schemes with an installed capacity of 18,030 MW have been allotted to private developers by States.

9.20 There are 45 hydro projects with an aggregate capacity of 15,000 MW under construction. Preparation of pre-feasibility reports of 162 schemes with aggregate installed capacity

of 49,930 MW has been completed by CEA. Bulk of the potential which is in the Himalayan region — the hill States of Jammu & Kashmir, Himachal Pradesh, Uttarakhand and the North-East — is yet to be tapped.

New hydro policy

9.21 The Electricity Tariff Policy, which was notified in January 2006, allows a special dispensation for project development by the State and Central PSUs on the basis of capital cost and norm based tariff to be determined by the Regulatory Commission.

9.22 The dispensation, allowed for PSUs, would now be available to the private sector for the same period of five years (from January 2006). This is contingent on a transparent procedure being followed by the host State in allotting projects and on timely achievement of specified milestones. The project developer would have to set apart 1 per cent of the power generated towards the development of the affected local area and provide 100 units of free power per affected family per month for a period of 10 years. A similar 1 per cent matching contribution is expected from the host State for local area development. These provisions are expected to provide a regular stream of revenue for the welfare of the project affected people.

9.23 While the initiative for allocation of the projects would remain with the State Government, the scrutiny by the regulator and the CEA would ensure that the project is designed and built in an optimal and economic manner, and that the interest of the consumers is protected. The Project Affected Families (PAFs) are expected to get a better relief and rehabilitation (R&R) package. From the point of view of the developer, the procedure

envisaged would reduce the risks associated with the construction, operation and maintenance (O&M) of hydro projects and facilitate early financial closure.

9.24 A Task Force has been constituted for the development of hydro power under the Chairmanship of Minister of Power. It has the Deputy Chairman, Planning Commission, Member (Power), Planning Commission, and the Minister(s) of Power of various State Governments as members. The Task Force shall examine and resolve issues relating to hydro power development such as allocation of sites, clearances for hydro projects, environment and wildlife issues, compensation to host States, land acquisition, rehabilitation and resettlement, sharing costs and benefits of power generation, water storage, navigation, and flood moderation of hydro power projects with States downstream of storage projects.

Merchant Power Plants

9.25 The Ministry of Power has issued guidelines for the setting up of Merchant Power Plants (MPPs) for which fuel tie-up would be facilitated. Unlike traditional utilities, Merchant Power Plants compete for customers and absorb full market risk. They are a market-based response to the growing electricity demand. There are no guarantees of minimum offtake. Merchant Power Plants fill different niches in the market; some provide steady supplies to the power grid, while others fire up to meet peak loads when the demand is at its highest.

Transmission, Trading, Access and Exchange

9.26 Generation capacities and demand points are unevenly distributed across the country due to various natural and historical factors. Furthermore, demand for power, (and to some extent, even its supply), is characterized by intra-day and seasonal variations. An integrated power transmission grid helps in evening out supply-demand mismatches. In addition, mechanisms for trading and exchange and open access facility into the grid could help in making the market for electricity more competitive and cost effective.

National grid

9.27 The existing inter-regional transmission
website: <http://indiabudget.nic.in>

capacity of about 17,000 MW that connects the Northern, Western, Eastern and North-Eastern Regions in a synchronous mode (at the same frequency) and the Southern Region asynchronously has enabled inter-regional energy exchange of about 38 billion kWh (January-November 2007). It is expected that the inter-regional capacity of more than 37,700 MW would be achieved by the end of the Eleventh Five Year Plan. Proposals are under way to have synchronous integration of Southern Region with the rest of the regions forming an all-India synchronous grid.

9.28 The Ministry of Power has notified Tariff-Based Competitive Bidding Guidelines for Transmission Service under Section 63 of the Electricity Act, 2003, to encourage competition in development of transmission projects. As per these guidelines, an empowered committee under the Chairmanship of Member, Central Electricity Regulatory Commission has been constituted. This committee has identified 14 transmission projects to be developed by the private sector through tariff-based competitive bidding. The Rural Electrification Corporation (REC) and Power Finance Corporation (PFC) have been entrusted with the task of formulating Feasibility Reports/Detailed Project Reports (DPRs) for these projects and to invite bids.

Trading of electricity

9.29 Under the Electricity Act of 2003, "trading" has been recognized as a distinct licensed activity in addition to distribution and transmission. Trading helps in resource optimization by facilitating the disposal of surplus power with distribution utilities on the one hand, and in meeting short-term peak demand on the other. The Central and State Electricity Regulatory Commissions have powers to grant inter-state and intra-state trading licences, respectively. CERC has granted 26 inter-state trading licences so far. Traders are categorized on the basis of volume of electricity to be traded and net worth of the trader (Table 9.9).

Operationalization of open access

9.30 Open access is one of the key features of Electricity Act, 2003. Open access in inter-state transmission is fully operational. To give a fresh impetus to implementation of open access over transmission lines of State utilities and over

Table 9.9 Inter-state trading in electricity

Period	Volume of Electricity Traded	Weighted average purchase	Weighted average sale price	Trading margin (Rs./kwh)
2005-06	14,188.3	3.14	3.23	0.09
2006-07	15,022.7	4.47	4.51	0.04
April–June 07	4,716.5	4.60	4.64	0.04
July–Sept.07	7,226.5	3.33	3.37	0.04

the distribution networks, the Ministry of Power convened a conference of Chief Secretaries in April 2007 and a conference of Chief Ministers in May 2007. The Ministry of Power also convened a meeting of the forum of regulators (FOR) and the State Power Secretaries on operationalization of open access at State level. The SERCs have resolved to actively operationalize open access. The Forum has launched a website www.forumofregulators.org to display the open access charges and status of open access applications in various States.

Power exchanges

9.31 CERC has issued guidelines for setting up power exchanges. It has also given approval to one application for setting up power exchange. This would further facilitate competition in the electricity sector.

Reforms in distribution

9.32 Reforms of the distribution system is a key area for infusing efficiency and commercial viability in the power sector. In February 2000, the Government of India introduced the Accelerated Power Development Programme (APDP), with the objective of initiating a financial turnaround in the State-owned power sector, which was subsequently rechristened as Accelerated Power Development and Reforms Programme (APDRP). There are two components under APDRP, viz. “investment component” and “incentive component”. While the focus of investment component has been on specific projects for upgradation of sub-transmission and distribution network, the latter envisaged incentivizing the State Governments up to 50 per cent of the actual total cash loss reduction by SEBs/utilities, as a grant.

9.33 During the Tenth Five Year Plan, the Central Government provided financial assistance under the investment component to the States for

strengthening and upgradation of sub-transmission and distribution systems of high-density load centres like towns and industrial areas. So far Rs. 7,124.63 crore has been released to the States under the investment component. During the Tenth Five Year Plan Rs. 1,959.7 crore has been released to various States for cash loss reduction under the incentive component of the APDRP. In 2007-08, Rs. 183.6 crore has been released under the investment component and Rs. 210.7 crore has been released under the incentive component till December 31, 2007.

9.34 The APDRP is to be continued during the Eleventh Five Year Plan with revised terms and conditions as a Central scheme. The focus of the programme shall be on actual, demonstrable performance in terms of loss reduction. Establishment of reliable automated systems for collection of accurate baseline data and the adoption of information technology in the areas of energy accounting would be necessary preconditions for sanctioning of projects for strengthening and upgradation of sub-transmission and distribution networks.

Guidelines for procurement of electricity

9.35 In compliance with Section 63 of the Electricity Act, 2003, the Central Government on January 19, 2005, notified guidelines for procurement of power by distribution licensees through competitive bidding. The Central Government has also issued the standard bid document containing Request For Qualification (RFQ), Request For Proposal (RFP) and model Power Purchase Agreement (PPA) for long-term procurement of power from projects having specified site and location through tariff-based competitive bidding. The Central Government has revised these standard bidding documents on September 21, 2007. This is likely to bring in larger private sector investment in the power sector and competitive tariffs.

Rural electrification

9.36 The Central Government launched a scheme “Rajiv Gandhi Grameen Vidhyutikaran Yojana” (RGGVY) in April 2005 with the goal of electrifying all unelectrified villages and hamlets and providing access to electricity to all households in the next five years for fulfillment of the NCMP. The scheme provides for free electricity connections to below poverty line (BPL) households. Rural Electrification Corporation is the nodal agency and the management of rural distribution has been envisaged through franchisees who could be non-governmental organizations (NGOs), users’ associations, cooperatives or individual entrepreneurs. Panchayat institutions would be associated with the management.

9.37 The Government has approved the continuation of the RGGVY during the Eleventh Five Year Plan period with an initial outlay of Rs. 28,000 crore with an envisaged coverage in Phase-I of about 1.15 lakh unelectrified villages and 2.34 crore rural BPL households. A three-tier quality control mechanism under RGGVY is being set up at the State, REC and the Ministry of Power level with random inspections by independent agencies (Box 9.1).

Electricity (Amendment) Act, 2007

9.38 The Electricity (Amendment) Act, 2007, enacted on May 29, 2007, and brought into force from June 15, 2007, amends certain provisions of the Electricity Act, 2003. Its main features are:

- The Central Government, jointly with the State Governments will endeavour to provide access to electricity to all areas including villages and hamlets through rural electricity infrastructure and electrification of households;
- No licence is required for sale from captive units.
- Deletion of the provision for elimination of cross subsidies. The provision for reduction of cross subsidies would continue.
- Definition of theft expanded to cover the use of tampered meters and use for unauthorized purpose. Theft is made explicitly cognizable and non-bailable.

Financial Performance of Power Utilities

9.39 Improving financial viability of power utilities is one of the key deliverables of power

sector reforms. The total commercial losses excluding subsidy of the State power sector has been estimated at Rs. 28,824.9 crore in 2006-07. The rate of return of the State power sector which was (-) 24.01 per cent in 2006-07 (P) is estimated to have improved to (-) 18 per cent in 2007-08 (RE). Nevertheless, the gross subsidy remained substantially higher at Rs. 43,132.6 crore with the subvention estimated at Rs. 14,159.6 crore in 2007-08 (Table 9.10).

Energy Conservation and Efficiency

9.40 While initiatives for addition to capacity to meet the growing demand for power are important in their own right, environmental considerations and the need for efficient use of resources make it imperative to pay focused attention to “demand-side management” as well. To this end, the Energy Conservation Act, 2001, empowers the Central Government (and in some instances the State Governments) to take concerted measures to reduce the energy intensity of the Indian economy. The Act enables the promotion of energy conservation measures through innovative financing and delivery. It also provides for notifying energy intensive industries, establishments and commercial buildings as “designated consumers” and to prescribe energy consumption standards for them. The Act provides for energy conservation building codes for efficient use of energy and its

Box 9.1

Rajiv Gandhi Grameen Vidhyuti-karan Yojana (RGGVY) : Progress

- 27 States and their utilities have signed the memorandum of agreement (MoA) agreeing to the conditionalities for implementation of the programme as envisaged under RGGVY.
- Four CPSUs—Power Grid Corporation (India) Ltd. (PGCIL), National Thermal Power Corporation (NTPC), National Hydro-electric Power Corporation (NHPC), Damodar Valley Corporation (DVC)—have been allocated 139 districts for implementation of RGGVY.
- At present 235 projects are under implementation covering 67,012 unelectrified villages and 83.1 lakh BPL households at the awarded cost of Rs. 12386.03 crore.
- 45,430 villages have been electrified and 18,25,508 connections to BPL households have been released.
- Franchisees are in place in 73,422 villages in 14 States.

Table 9.10 Financial performance of State power sector

		(Rs. crore)			
		2005-06 (Actual)	2006-07 (P)	2007-08(RE)	2008-09 (AP)
A	Gross Subsidy on sale of electricity to	35,539.6	40,054.0	43,132.6	46,087.4
	(i) Agriculture	23,833.4	26,605.7	29,299.4	30,194.2
	(ii) Domestic	10,432.5	13,171.8	13,307.9	14,499.2
	(iii) Inter-State Sales	1,273.8	276.5	525.4	1,394.0
B	Less subvention from State Govts.	13,414.7	13,752.5	14,159.6	13,358.8
C	Net Subsidy	22,125.0	26,301.5	28,973.1	32,728.6
D	Surplus Generated by sale to other sectors	8,232.7	5,275.6	8,704.0	9,638.9
E	Uncovered Subsidy	13,892.3	21,025.9	20,269.1	23,089.7
F	(i) Commercial Losses (excluding subsidy)	22,733.8	28,824.9	25,701.4	26,461.8
F	(ii) Commercial Losses (including subsidy)	9,319.1	15,072.4	11,541.8	13,103.0
G	Rate of Return (ROR %)^a	-19.7	-24.0	-18.0	-14.3
H	Revenue Mobilization - From introducing 50 paise /unit from Agriculture/Irrigation	1,541.1	1,631.9	1,768.8	1,308.6

Source: Planning Commission

P: Provisional RE: Revised Estimates AP: Annual Plan Estimates ^a For losses without subsidy

Note : The information on commercial losses for Orissa and Delhi pertain to GRIDCO of Orissa and Transmission Company of Delhi only. Information for Haryana, Rajasthan, U.P, Uttarakhand, Gujarat, Maharashtra, West Bengal, Andhra Pradesh and Karnataka relates to distribution companies set up after the reforms. In case of other States, the information pertains to power sector as whole.

conservation in commercial buildings. There are also provisions that enable specification of energy consumption standards for notified equipment and

appliances and making their labeling mandatory. Some of the initiatives taken for energy conservation are given in Box 9.2

Box 9.2 Demand-side measures initiated by the Government

- **CDM Based CFL Scheme:** The Government has approved a scheme of Rs. 48 crore to promote replacement of incandescent bulbs with Compact Fluorescent Lamps (CFLs) by leveraging the sale of Certified Emission Rights (CERs) under the Clean Development Mechanism (CDM) under Kyoto Protocol. The Bureau of Energy Efficiency (BEE) is coordinating voluntary efforts to provide high-quality CFLs to domestic consumers. This will reduce CO2 emission and help avoid capacity of 6,000 to 10,000 MW.
- **Energy Conservation Building Code (ECBC):** The ECBC has been launched to reduce energy consumption in new commercial buildings.
- **Standards and Labeling Programme & Strengthening of SDAs:** The Government has approved a scheme for capacity building at State level (with an approved cost of Rs 49.47 crore) and a Standards labeling programme to promote Energy Efficient Equipments and Appliances with an allocation of Rs. 47.71 crore.
- **Institution Building of Energy Managers/Auditors:** The Government is taking a proactive role in establishing a proper energy management system in the country. Four National certification examinations for energy managers and energy auditors have been conducted and over 5,000 energy auditors/managers have been certified. These energy managers would oversee energy use and promote energy conservation in high energy consuming industries.
- **(e) National Energy Conservation Awards:** To promote energy conservation, the Government initiated the "Energy Conservation Awards" in 1991. At present, BEE coordinates these awards. The Awards includes 33 sub-sectors from large and medium scale industries and 3 sub-sectors from small-scale industries. Participation for these awards has been increasing. This scheme has institutionalized the energy efficiency movement by giving recognition to energy conservation efforts by industries.
- **(f) Painting competitions for schoolchildren** at various levels are being organized by the MOP to inculcate the message of energy conservation in children of Classes IV and V since 2005. The competition has been well received and more than 12 lakh children have participated.