

Generation Details in the Eastern Region for the year 2002-2003					
Generation Source	Fuel	Gross MkWh Generated	Source		
		2002-2003			
State Electricity Boards					
Thermal	Coal	1766.09	CEA General Review (2002-2003) : Table No. 3.5		
Thermal	Diesel	0.57			
Thermal (Gas Turbine)	Diesel	0.19			
Hydro	Hydro	597.33			
Wind	Wind	0.00			
Electricity Departments/ Govt. Undertakings/ Municipalities					
Thermal	Coal	27537.20	CEA General Review (2002-2003) : Table No. 3.6 (Excluding A&N Islands)		
Thermal	Diesel	0.32			
Thermal (Gas Turbine)	Diesel	8.33			
Hydro	Hydro	3646.70			
Wind	Wind	0.32			
Nuclear	Nuclear	0.00			
Private Generating Stations					
Thermal	Coal	7801.07	CEA General Review (2002-2003) : Table No. 3.6		
Thermal	Diesel	0.00			
Thermal (Gas Turbine)	Diesel	0.00			
Hydro	Hydro	0.00			
Wind	Wind	0.00			
Non-Utilities					
Self Generating Industries	Low Cost (Assumed for conservative estimate)			542.88	CEA General Review (2002-2003) : Table No. 5.3
Generation Source	Fuel	Gross MkWh Generated	Auxiliary Consumption (MkWh)	Net MkWh Generated	Source
		2002-2003	2002-03	2002-03	
Total Thermal	Coal	37104.36	3840.89	33263.47	For Auxiliary Consumption: CEA General Review (2002-2003) : Table No. 5.6 (Excluding A&N Islands)
Total Thermal	Diesel	0.89	0.00	0.89	
Total Thermal (Gas Turbine)	Diesel	8.52	1.00	7.52	
Total Hydro	Hydro	4244.03	73.47	4170.56	
Total Wind	Wind	0.32	0.00	0.32	
Total Nuclear	Nuclear	0.00	0.00	0.00	

Total from Non-Utilities	Low Cost (Assumed for conservative estimate)			542.88	
Generation of Central Sector Power Plants located in Eastern Region					
Total Thermal	Coal	22638.67	1915.96	20722.71	CEA General Review (2002-2003) : Table No. 3.6 For Auxiliary Consumption: CEA General Review (2002-2003) : Table No. 5.6
Total Thermal	Diesel	0.00	0.00	0.00	
Total Thermal (Gas Turbine)	Diesel	0.00	0.00	0	
Total Hydro	Hydro	352.84	0.81	352.03	
Total Wind	Wind	0.00	0.00	0.00	
Total Nuclear	Nuclear	0.00	0.00	0.00	
Import from Central Sector Power Plants located in other Regions					
Total Thermal	Coal			1.23	CEA General Review (2002-2003) : Table No. 5.8
Total Thermal	Diesel			0.00	
Total Thermal	Gas			0.48	
Total Hydro	Hydro			0.00	
Total Wind	Wind			0.00	
Total Nuclear	Nuclear			0.00	
Import from other Regions					CEA General Review (2002-2003) : Table No. 5.2
North Eastern				229.95	CEA General Review (2002-2003) : Table No. 5.9
Southern				100.8	
Northern				0	
Total Import from other Regions				330.75	Sum of import from Central Sector Power Plants located in other regions and import from other regions can be cross checked with Table No. 5.2 of CEA General Review (2002-2003)

Import from other Countries				1519.58	CEA General Review (2002-2003) : Table No. 5.9- Can be cross-checked with Table No.5.2 of CEA General Review (2002-2003)
Total Thermal Generation in ER	Coal			53987.41	
Total Thermal Generation in ER	Diesel			8.41	
Total Thermal Generation in ER	Gas			0.48	
Total Hydro Generation in ER	Hydro			4522.59	
Total Wind Generation in ER	Wind			0.32	
Total Nuclear Generation in ER	Nuclear			0.00	
Total Generation from Non-Utilities in ER	Low Cost (Assumed for conservative estimate)			542.88	CEA General Review (2002-2003) : Table No. 5.2
Total Import from other Regions in ER	Low Cost (Assumed for conservative estimate)			330.75	
Total Import from other Countries				1519.58	CEA General Review (2002-2003) : Table No. 5.2
Total Generation in ER (including Gen. from SEBs, Electricity Dept., Govt. Undertakings, Municipalities, Private Generating Stations and Central Sector Share)				58519.21	
Total Generation from Non-Utilities in ER				542.88	Can be cross checked with Table No. 5.2 of CEA General Review (2002-2003)
Total Import from other Regions in ER				330.75	

Total Import from other Countries in ER				1519.58	Can be cross checked with Table No. 5.2 of CEA General Review (2002-2003)
Gross Generation from all sources in ER				60912.42	Can be cross checked with Table No. 5.2 of CEA General Review (2002-2003)
20% of Gross Generation from all sources in ER				12182.484	

Generation Details in the Eastern Region for the year 2004-2005					
State	Fuel	Gross MkWh Generated	Auxiliary Consumption (MkWh)	Net MkWh Generated	Source
		2004-2005	2004-2005	2004-2005	
Bihar					
Total Thermal	Coal	153.78		153.78	Source: http://cea.nic.in/god/opm/Monthly_Generation_Report/18col_05_03.pdf
Total Thermal	Diesel	0.00		0.00	
Total Thermal (Gas Turbine)	Diesel	0.00		0.00	
Total Hydro	Hydro	50.23		50.23	
Total Wind	Wind	0.00		0.00	
Total Nuclear	Nuclear	0.00		0.00	
Jharkhand					
Total Thermal	Coal	2881.23		2881.23	Source: http://cea.nic.in/god/opm/Monthly_Generation_Report/18col_05_03.pdf
Total Thermal	Diesel	0.00		0.00	
Total Thermal (Gas Turbine)	Diesel	0.00		0.00	
Total Hydro	Hydro	148.74		148.74	
Total Wind	Wind	0.00		0.00	
Total Nuclear	Nuclear	0.00		0.00	
Orissa					
Total Thermal	Coal	4259.83		4259.83	Source: http://cea.nic.in/god/opm/Monthly_Generation_Report/18col_05_03.pdf
Total Thermal	Diesel	0.00		0.00	
Total Thermal (Gas Turbine)	Diesel	0.00		0.00	
Total Hydro	Hydro	6864.03		6864.03	
Total Wind	Wind	0.00		0.00	

Total Nuclear	Nuclear	0.00		0.00	
DVC					
Total Thermal	Coal	10583.54		10583.54	Source: http://cea.nic.in/god/opm/Monthly_Generation_Report/18col_05_03.pdf
Total Thermal	Diesel	0.00		0.00	
Total Thermal (Gas Turbine)	Diesel	0.00		0.00	
Total Hydro	Hydro	260.52		260.52	
Total Wind	Wind	0.00		0.00	
Total Nuclear	Nuclear	0.00		0.00	
West Bengal					
Total Thermal	Coal	24310.99		24310.99	Source: http://cea.nic.in/god/opm/Monthly_Generation_Report/18col_05_03.pdf
Total Thermal	Diesel	0.00		0.00	
Total Thermal (Gas Turbine)	Diesel	0.00		0.00	
Total Hydro	Hydro	508.40		508.40	
Total Wind	Wind	0.00		0.00	
Total Nuclear	Nuclear	0.00		0.00	
Sikkim					
Total Thermal	Coal	0.00		0.00	Source: http://cea.nic.in/god/opm/Monthly_Generation_Report/18col_05_03.pdf
Total Thermal	Diesel	0.17		0.17	
Total Thermal (Gas Turbine)	Diesel	0.00		0.00	
Total Hydro	Hydro	61.04		61.04	
Total Wind	Wind	0.00		0.00	
Total Nuclear	Nuclear	0.00		0.00	
Generation in Central Sector Power Plants located in Eastern Region					
Total Thermal	Coal	35229.8		35229.8	Source: http://cea.nic.in/god/opm/Monthly_Generation_Report/18col_05_03.pdf
Total Thermal	Diesel	0.00		0.00	
Total Thermal (Gas Turbine)	Diesel	0.00		0.00	
Total Hydro	Hydro	369.64		369.64	
Total Wind	Wind	0.00		0.00	
Total Nuclear	Nuclear	0.00		0.00	
Import from Central Sector Power Plants located in other Regions					
Total Thermal	Coal	0.00		0.00	Source:
Total Thermal	Diesel	0.00		0.00	

Total Thermal	Gas	0.00		0.00	http://cea.nic.in/god/reb/ereb/Chapters in English/chapter-2.doc
Total Hydro	Hydro	0.00		0.00	
Total Wind	Wind	0.00		0.00	
Total Nuclear	Nuclear	0.00		0.00	
Import from other Regions					
North Eastern				1142.84	Source: http://cea.nic.in/god/reb/ereb/Annexures(E)/Annexure-VIII.xls
Southern				0	
Northern				0	
Total Import from other Regions				1142.84	
Import from other Countries				1734.55	Source: http://cea.nic.in/god/reb/ereb/Chapters in English/chapter-2.doc (Pg/13)
Total Thermal Generation in ER	Coal	77419.17	7741.92	69677.25	Assumed Auxiliary Consumption: CEA General Review (2005) : Table No. 5.5
Total Thermal Generation in ER	Diesel	0.17	0.005	0.17	
Total Thermal Generation in ER	Gas	0.00	0.00	0.00	
Total Hydro Generation in ER	Hydro	8262.60	38.83	8223.77	
Total Wind Generation in ER	Wind	0.00	0.00	0.00	
Total Nuclear Generation in ER	Nuclear	0.00	0.00	0.00	
Total Import from other Regions in ER				1142.84	
Total Import from other Countries in ER				1734.55	
Total Generation in ER (including Gen. from all the States, Union Territories and Central Sector Share)				77901.18	
Total Import from other Regions in ER				1142.84	
Total Import from other Countries in ER				1734.55	

Gross Generation from all sources in ER				80778.58	
20% of Gross Generation from all sources in ER				16155.715	

Generation Details in the Eastern Region for the year 2003-2004					
Generation Source	Fuel	Gross MkWh Generated	Source		
		2003-2004			
State Electricity Boards					
Thermal	Coal	1509.92	CEA General Review (2005) : Table No. 3.5		
Thermal	Diesel	0.58			
Thermal (Gas Turbine)	Diesel	0.00			
Hydro	Hydro	647.23			
Wind	Wind	0.47			
Electricity Departments/ Govt. Undertakings/ Municipalities					
Thermal	Coal	30130.69	CEA General Review (2005) : Table No. 3.6 (Excluding A&N Islands)		
Thermal	Diesel	0.00			
Thermal (Gas Turbine)	Diesel	6.61			
Hydro	Hydro	6539.02			
Wind	Wind	0.00			
Nuclear	Nuclear	0.00			
Private Generating Stations					
Thermal	Coal	8730.23	CEA General Review (2005) : Table No. 3.6 (Excluding A&N Islands)		
Thermal	Diesel	0.00			
Thermal (Gas Turbine)	Diesel	0.00			
Hydro	Hydro	0.00			
Wind	Wind	0.00			
Non-Utilities					
Self Generating Industries	Low Cost (Assumed for conservative estimate)			663.76	CEA General Review (2005) : Table No. 5.3
Generation Source	Fuel	Gross MkWh Generated	Auxiliary Consumption (MkWh)	Net MkWh Generated	Source
		2003-2004	2003-2004	2003-2004	
Total Thermal	Coal	40370.84	4492.73	35878.11	For Auxiliary Consumption: CEA General Review (2005) : Table No. 5.5 (Excluding A&N Islands)
Total Thermal	Diesel	0.58	0.00	0.58	
Total Thermal (Gas Turbine)	Diesel	6.61	0.94	5.67	
Total Hydro	Hydro	7186.25	34.44	7151.81	
Total Wind	Wind	0.47	0.00	0.47	
Total Nuclear	Nuclear	0.00	0.00	0.00	

Total from Non-Utilities	Low Cost (Assumed for conservative estimate)			663.76	
Generation of Central Sector Power Plants located in Eastern Region					
Total Thermal	Coal	29183.16	2463.64	26719.52	CEA General Review (2005) : Table No. 3.6 For Auxiliary Consumption: CEA General Review (2005) : Table No. 5.5
Total Thermal	Diesel	0.00	0.00	0.00	
Total Thermal (Gas Turbine)	Diesel	0.00	0.00	0.00	
Total Hydro	Hydro	344.26	0.68	343.58	
Total Wind	Wind	0.00	0.00	0.00	
Total Nuclear	Nuclear	0.00	0.00	0.00	
Import from Central Sector Power Plants located in other Regions					
Total Thermal	Coal			0.00	CEA General Review (2005) : Table No. 5.7
Total Thermal	Diesel			0.00	
Total Thermal	Gas			0.00	
Total Hydro	Hydro			0.00	
Total Wind	Wind			0.00	
Total Nuclear	Nuclear			0.00	
Import from other Regions					CEA General Review (2005) : Table No. 5.2
North Eastern				335	CEA General Review (2005) : Table No. 5.8
Southern				52.61	
Northern				9.01	
Total Import from other Regions				396.62	Sum of import from Central Sector Power Plants located in other regions and import from other regions can be cross checked with Table No. 5.2 of CEA General Review (2005)

Import from other Countries				1748.40	CEA General Review (2005) : Table No. 5.8- Can be cross-checked with Table No.5.2 of CEA General Review (2005)
Total Thermal Generation in ER	Coal			62597.63	
Total Thermal Generation in ER	Diesel			6.25	
Total Thermal Generation in ER	Gas			0.00	
Total Hydro Generation in ER	Hydro			7495.39	
Total Wind Generation in ER	Wind			0.47	
Total Nuclear Generation in ER	Nuclear			0.00	
Total Generation from Non-Utilities in ER	Low Cost (Assumed for conservative estimate)			663.76	CEA General Review (2005) : Table No. 5.2
Total Import from other Regions in ER				396.62	CEA General Review (2005) : Table No. 5.2
Total Import from other Countries				1748.40	CEA General Review (2005) : Table No. 5.2
Total Generation in ER (including Gen. from SEBs, Electricity Dept., Govt. Undertakings, Municipalities, Private Generating Stations and Central Sector Share)				70099.74	
Total Generation from Non-Utilities in ER				663.76	Can be cross checked with Table No. 5.2 of CEA General Review (2005)
Total Import from other Regions in ER				396.62	Can be cross checked with Table No. 5.2 of CEA General Review (2005)

Total Import from other Countries in ER				1748.40	Can be cross checked with Table No. 5.2 of CEA General Review (2005)
Gross Generation from all sources in ER				72908.52	Can be cross checked with Table No. 5.2 of CEA General Review (2005)
20% of Gross Generation from all sources in ER				14581.704	

Power Plants	Capacity	Date of Commissioning	Source/ Comments	
Bihar				
Hydro				
Kosi I	5	1966	http://www-wds.worldbank.org/servlet/WDSCContentServer/WDSP/IB/2001/04/24/000094946_01041107222025/Rendered/INDEX/multi0page.txt	
Kosi II	5	1966		
Kosi III	5	1966		
Kosi IV	5	1966		
Sone West Canal I	1.65	1993		
Sone West Canal II	1.65			
Sone West Canal III	1.65			
Sone West Canal IV	1.65			
E.G.Canal I	5	1995-1997	http://www.cea.nic.in/hydro/List%20of%20HE%20Stations%20in%20the%20country.htm http://www.bshpcitd.com/	
E.G.Canal II	5			
E.G.Canal III	5			
Sone East Canal I	1.65	1996		
Sone East Canal II	1.65			
Sone East Canal III	1.65			
Sone East Canal IV	1.65			
Gas				
Patna I	1.5		No generation data reported in http://www.cea.nic.in/god/opm/Monthly_Generation_Report/18col_05_03.pdf	
Patna II	1.5			
Patna	3			
Patna	7.5			
Coal				
Barauni I	50	9/11/1969		
Barauni II	50	1/2/1971	http://bseb.bih.nic.in/Download/Power%20Generation%20Update.pdf	
Barauni I	110	1/12/1984		
Barauni II	110	31/03/1985	http://www.cea.nic.in/thermal/List%20of%20Thermal%20Power%20Stations%20in%20the%20Country.pdf	
Muzaffarpur I	110	13/3/1985		
Muzaffarpur II	110	17/03/1986		
Jharkhand				
Hydro				
Subarnarekha - I	65	2004	http://www.projectsmonitor.com/detailnews.asp?newsid=6280	
Subarnarekha - II	65	2004		
Chandil I	4	Dec-02		
Chandil II	4	Mar-03	http://www.bshpcitd.com/bihar.htm	
Coal				
Patratu I	50	1965	http://projectsmonitor.com/detailnews.asp?newsid=4443	
Patratu II	50	1965		
Patratu III	50	1965		
Patratu IV	50	1965		
Patratu I	100	1965		
Patratu II	100	1965		
Patratu I	110	1965		
Patratu II	110	1965		
Patratu III	110	1965		
Patratu IV	110	1965		
Tenughat (TVNL) I	210	Jan-96		
Tenughat (TVNL) II	210	Mar-98		
Coal (Private Sector)				
Jojobera I	120	1996		http://www.cea.nic.in/god/opm/Monthly_Generation_Report/18col_05_03.pdf
Jojobera II	120	2000		http://www.tatapower.com/modules.php?name=Content&pa=showpage&pid=14
Orissa				
Hydro				
Balimela P.H [OHPC], U-1	60	1973		
Balimela P.H [OHPC], U-2	60	1974		
Balimela P.H [OHPC], U-3	60	1974		
Balimela P.H [OHPC], U-4	60	1975		
Balimela P.H [OHPC], U-5	60	1976		
Balimela P.H [OHPC], U-6	60	1977		
Hirakud, Chiplima [OHPC], U-1	24	1962		
Hirakud, Chiplima [OHPC], U-2	24	1962		
Hirakud, Chiplima [OHPC], U-3	24	1964		
Hirakud, Burla [OHPC], U-1	37.5	1958		
Hirakud, Burla [OHPC], U-2	37.5	1957		
Hirakud, Burla [OHPC], U-3	24	1956		
Hirakud, Burla [OHPC], U-4	24	1957		
Hirakud, Burla [OHPC], U-5	37.5	1962		
Hirakud, Burla [OHPC], U-6	37.5	1963		
Hirakud, Burla [OHPC], U-7	37.5	1990		
Rengali P.H. [OHPC], U-1	50	1985		
Rengali P.H. [OHPC], U-2	50	1986		
Rengali P.H. [OHPC], U-3	50	1989		
Rengali P.H. [OHPC], U-4	50	1990		
Rengali P.H. [OHPC], U-5	50	1992		
U. Kolab P.H. [OHPC], U-1	80	1988		
U. Kolab P.H. [OHPC], U-2	80	1988		
U. Kolab P.H. [OHPC], U-3	80	1990		
U. Kolab P.H. [OHPC], U-4	80	1993		

Indravati P.H., U-1 [OHPC]	150	1999	
Indravati P.H., U-2 [OHPC]	150	1999	
Indravati P.H., U-4 [OHPC]	150	2001	
Indravati P.H., U-3 [OHPC]	150	2000	
Machhkund PH [OHPC] (Share of Orissa -50%), U-1	17	1955	
Machhkund PH [OHPC] U-2	17	1955	
Machhkund PH [OHPC] U-3	17	1956	
Machhkund PH [OHPC] U-4	21.25	1959	
Machhkund PH [OHPC] U-5	21.25	1959	
Machhkund PH [OHPC] U-6	21.25	1959	
Coal (State Sector)			
Ib Valley (I & II) [OPGC]	420	1994	
Coal (Private Sector)			
ICCL		Feb-89	http://onerc.org/Orders/2001/Case-26-2001.pdf
Nalco		1986	http://www.nalcoindia.com/LANDMARK/LAND1.HTM
DVC			
Coal			
Chandrapur Unit-I	140	Oct-64	http://www.dvcindia.org/power/sub/chandrapura.htm
Chandrapur Unit-II	140	May-65	
Chandrapur Unit-III	140	Jul-68	
Chandrapur Unit-IV	120	Mar-74	
Chandrapur Unit-V	120	Mar-75	
Chandrapur Unit-VI	120	Mar-79	
Durgapur Unit-I	75	1960	http://www.dvcindia.org/power/sub/durgapur.htm
Durgapur Unit-II	75	(Decommissioned in 1982)	
Durgapur Unit-III	140	Dec-66	
Durgapur Unit-IV	210	Sep-82	
Bokaro A Unit-I	57.5	Feb-53	http://www.dvcindia.org/power/sub/bokarob.htm
Bokaro A Unit-II	57.5	Aug-53	
Bokaro A Unit-III	57.5	Oct-53	
Bokaro A Unit-IV	75	Apr-60	
Bokaro B Unit-I	210	Mar-86	http://www.dvcindia.org/power/sub/bokarob.htm
Bokaro B Unit-II	210	Nov-90	
Bokaro B Unit-III	210	Aug-93	
Meija Unit-I	210	Mar-96	
Meija Unit-II	210	Mar-98	http://www.dvcindia.org/power/sub/meija.htm
Meija Unit-III	210	Sep-99	
Meija Unit-IV	210	Feb-05	
Gas			
Maithon Unit-I	27.5	Oct-89	http://www.cea.nic.in/thermal/List%20of%20Thermal%20Power%20Stations%20in%20the%20Country.pdf
Maithon Unit-II	27.5	Nov-89	
Maithon Unit-III	27.5	Dec-89	
Hydro			
Panchet	40	Dec-59	http://www.dvcindia.org/power/sub/panchet.htm
Panchet Extension	40	Mar-91	
Maithon Unit-I	20	Oct-57	http://www.cea.nic.in/hydro/List%20of%20HE%20Stations%20in%20the%20country.htm
Maithon Unit-II	20	Mar-58	
Maithon Unit-III	23.2	Dec-58	
Tilaiya Unit-I	2	Feb-53	http://www.dvcindia.org/power/sub/tilaiya_hydel.htm
Tilaiya Unit-II	2	Jul-53	
Sikkim			
Hydro			
Lower Lagyap I	6	1/9/1979	http://neportal.org/northeastfiles/Sikkim/Economy/Annual_Plans/2001-02/15.asp
Lower Lagyap II	6	2/11/1979	
Upper Rognichu I	2	1992	http://powermin.nic.in/reports/pdf/ar93-94.pdf http://powermin.nic.in/reports/pdf/ar92-93.pdf
Upper Rognichu II	2	1992	
Upper Rognichu I	2	Jul-93	
Upper Rognichu II	2	Aug-93	
Moyangchu I	2	93-94	http://sikkimpower.nic.in/links/generation.htm
Moyangchu II	2		
West Bengal			
Coal			
Bakreswar U-1	210	2000	
Bakreswar U-2	210	2001	
Bakreswar U-3	210	2001	
Kolaghat U-1	210	1984	
Kolaghat U-2	210	1986	
Kolaghat U-3	210	1990	
Kolaghat U-4	210	1991	
Kolaghat U-5	210	1992	
Kolaghat U-6	210	1993	
Santaldih U-1	120	1974	
Santaldih U-2	120	1975	
Santaldih U-3	120	1978	
Santaldih U-4	120	1981	
Bandel U-1	80	1965	
Bandel U-2	80	1966	
Bandel U-3	80	1966	
Bandel U-4	80	1966	
Bandel U-5	210	1983	
DPL U-1	30	1960	
DPL U-2	30	1960	
DPL U-3	77	1964	
DPL U-4	77	1964	
DPL U-5	77	1966	

DPL U-6	110	1987	
DPSC- Chinnakuri	30	1992	
DPSC- Dishergarh	18	1932	
DPSC- Seebpore	8	1934	
CECSC- Mulajore	60	1939	Source: http://cesc.co.in/php_cescitd/generation/home.php
CECSC- New Cossipore	130 (100)	1949	
CECSC- Titagarh	240	1983	Source:
CECSC- Southern REPL	135	1990	http://cesc.co.in/php_cescitd/generation/Stations.php
CECSC- Budge Budge	500	1997	
Gas			
Kasba GT	40	1979	
Siliguri GT	20	1980	
Haldia GT	40	1979	
Hydro			
Jaldakha-S-1A	18	1967	
Jaldakha-S-1B	18	1972	
Jaldakha-S-II	8	1983	
Massanjore	4		www.unescap.org/enrd/water_mineral/disaster/Food%20and%20role%20of%20people.doc
Ramman S-II-U1	12.75	1995	
Ramman S-II-U2	12.75	1996	
Ramman S-II-U3	12.75	1996	
Ramman S-II-U4	12.75	1996	
Teesta Canal Fall U-1	7.5	1993	
Teesta Canal Fall U-2	7.5	1993	
Teesta Canal Fall U-3	7.5	1993	
Teesta Canal Fall U-4	7.5	1994	
Teesta Canal Fall U-5	7.5	1994	
Teesta Canal Fall U-6	7.5	1994	
Teesta Canal Fall U-7	7.5	1995	
Teesta Canal Fall U-8	7.5	1995	
Teesta Canal Fall U-9	7.5	1995	

Central Sector Plants			
Coal			
NTPC Farakka Unit-I	200	Jan-86	
NTPC Farakka Unit-II	200	Dec-86	
NTPC Farakka Unit-III	200	Aug-87	http://www.ntpc.co.in/powerplants/ntpc_fw_farakka.shtml
NTPC Farakka Unit-IV	500	Sep-92	
NTPC Farakka Unit-V	500	Feb-94	
NTPC Kahalgaon Unit-I	210	Mar-92	
NTPC Kahalgaon Unit-II	210	Mar-94	http://www.ntpc.co.in/powerplants/ntpc_fw_kahalgaon.shtml
NTPC Kahalgaon Unit-III	210	Mar-95	
NTPC Kahalgaon Unit-IV	210	Mar-96	
NTPC Talcher STPS, Kahina (Stage-I) Unit-I	500	Feb-95	
NTPC Talcher STPS, Kahina (Stage-I) Unit-II	500	Mar-96	
NTPC Talcher STPS, Kahina (Stage-II) Unit-III	500	Jan-03	http://www.ntpc.co.in/powerplants/ntpc_fw_kaniha.shtml
NTPC Talcher STPS, Kahina (Stage-II) Unit-IV	500	Oct-03	
NTPC TTPS	460 (4x60+2x110)	1960	Indian Power Sector Reforms Update
Hydro			
NHPC Rangeet Unit-I	20		
NHPC Rangeet Unit-II	20	1999	http://www.nhpcindia.com/english/op.htm
NHPC Rangeet Unit-III	20		

Sample of Power Plants for BM Calculation								
Sr.No.	Power plant name / location	State	Year of commissioning	Fuel Type	Capacity of the new addition	Total Capacity	Generation of the Unit in 2004-2005	Comments
					(MW)	(MW)	(MkWh)	
1	Small Hydro	Sikkim		Hydro		8.9	9.41	No specific commissioning date has been found; however it has been considered for a conservative estimate
2	Massanjore	West Bengal		Hydro		4	0.00	
3	DVC Mejia U-4	Central (West Bengal)	Feb 2005	Coal	210	840	178.18	
4	Subarnarekha-I	Jharkhand	2004	Hydro	65	130	230.91	
5	Subarnarekha-II	Jharkhand	2004	Hydro	65	130		
6	NTPC Talcher STPS, Kahina (Stage-II) Unit-IV	Central (Orissa)	Oct 2003	Coal	500	2000	3655.67	
7	Chandil-II	Jharkhand	March 2003	Hydro	4	8	0.00	
8	NTPC Talcher STPS, Kahina (Stage-II) Unit-III	Central (Orissa)	Jan 2003	Coal	500	2000	3655.67	
9	Chandil-I	Jharkhand	Dec 2002	Hydro	4	8	0.00	
10	Bakreswar U-3	West Bengal	2001	Coal	210	630	1252.91	
11	Bakreswar U-2	West Bengal	2001	Coal	210	630	1252.91	
12	Indravati P.H. U-4	Orissa	2001	Hydro	150	600	709.47	
13	Indravati P.H. U-3	Orissa	2000	Hydro	150	600	709.47	
14	Jojobera-II	Jharkhand	2000	Coal	120	240	365.14	
15	Bakreswar U-1	West Bengal	2000	Coal	210	630	1252.91	
16	NHPC Rangeet Unit-I	Central	1999	Hydro	20	60	367.90	
17	NHPC Rangeet Unit-II	Central	1999	Hydro	20	60		
18	NHPC Rangeet Unit-III	Central	1999	Hydro	20	60		
19	Indravati P.H. U-2	Orissa	1999	Hydro	150	600	709.47	
20	Indravati P.H. U-1	Orissa	1999	Hydro	150	600	709.47	
21	DVC Mejia U-3	Central (West Bengal)	Sep 1999	Coal	210	840	1069.09	
22	Tenughat (TVNL) II	Jharkhand	March 1998	Coal	210	420	596.48	
					Total		16725.06	
					20% of Gross generation in the most recent year i.e. 2004-2005		16155.72	
					Coal		13278.95	
					Hydro		3446.12	
23	DVC Mejia U-2	Central (West Bengal)	March 1998	Coal	210	840	1069.09	Both TVNL-II & DVC Mejia U-2 have been commissioned in March 1998; however as a conservative estimate only TVNL-II has been considered since it contributes lesser MkWh.

Enclosure

CALCULATION OF BASELINE EMISSION FACTORS AND EMISSION REDUCTIONS OF SRBSL - WASTE HEAT RECOVERY POWER PROJECT

Baseline calculations using Combined Margin Approach

Year of offer	2002-03		2003-04		2004-05		2005 - 2006	2007
Generation Mix								
Sector	MkWh	%	MkWh	%	MkWh	%		
Thermal Coal Based-Eastern Region	53987.41	91.41	62597.63	88.46	69677.25	89.44		
Thermal Diesel Based-Eastern Region	8.41	0.01	6.25	0.01	0.17	0.00		
Thermal Gas Based-Eastern Region	0.48	0.00	0.00	0.00	0.00	0.00		
Hydro-Eastern Region	4522.59	7.66	7495.39	10.59	8223.77	10.56		
Wind-Eastern Region	0.32	0.00	0.47	0.00	0.00	0.00		
Nuclear-Eastern Region	0.00	0.00	0.00	0.00	0.00	0.00		
Import from Non-Utilities	542.88	0.92	663.76	0.94	0.00	0.00		
Total	59062.09	100.00	70763.50	100.00	77901.18	100.00		
Total generation excluding Low-cost power generation	53996.30		62603.88		69677.42			
Generation by Coal out of Total Generation excluding Low-cost power generation	53987.41	99.98	62597.63	99.99	69677.25	100.00		
Generation by Diesel out of Total Generation excluding Low-cost power generation	8.41	0.02	6.25	0.01	0.17	0.00		
Generation by Gas out of Total Generation excluding Low-cost power generation	0.48	0.00	0.00	0.00	0.00	0.00		
Imports from others								
Imports from NEREB	229.95		335.00		1142.84			
Imports from SREB	100.80		52.61		0.00			
Imports from NREB	0.00		9.01		0.00			
Import from Other Countries	1519.58		1748.40		1734.55			
Estimation of Baseline Emission Factor (tCO2/MkWh)								
Simple Operating Margin								
Fuel 1 : Coal								
Avg. Efficiency of power generation with coal as a fuel, %		36.317		36.229		36.364		
Avg. Calorific Value of Coal used (kcal/kg)		4171		3820		3820		
Estimated Coal consumption (tons/yr)		30650637		38899347		43137880		
Emission Factor for Coal-IPCC standard value (tonne CO2/TJ)		96.1		96.1		96.1		
Oxidation Factor of Coal-IPCC standard value		0.98		0.98		0.98		
COEF of Coal (tonneCO2/ton of coal)		1.645		1.506		1.506		
Fuel 2 : Diesel								
Avg. Efficiency of power generation with diesel as a fuel, %		41.707		41.707		41.707		
Avg. Calorific Value of Diesel used (kcal/kg)		9760		10186		10186		
Estimated Diesel consumption (tons/yr)		1777		1265		33		
Emission Factor for Diesel-IPCC standard value (tonne CO2/TJ)		74.1		74.1		74.1		
Oxidation Factor of Diesel-IPCC standard value		0.99		0.99		0.99		
COEF of Diesel (tonneCO2/ton of diesel)		2.998		3.129		3.129		
Fuel 3 : Gas								
Avg. Efficiency of power generation with gas as a fuel, %		45		45		45		
Avg. Calorific Value of Gas used (kcal/kg)		11942		11942		11942		
Estimated Gas consumption (tons/yr)		77		0		0		
Emission Factor for Gas-IPCC standard value(tonne CO2/TJ)		56.1		56.1		56.1		
Oxidation Factor of Gas-IPCC standard value		0.995		0.995		0.995		
COEF of Gas(tonneCO2/ton of gas)		2.791		2.791		2.791		
EF (OM Simple, excluding imports from other grids), tCO2/MkWh		933.72		936.02		932.57		
EF (NEREB), tCO2/MkWh		380.00		390.00		390.00		
EF (SREB), tCO2/MkWh		770.00		760.00		740.00		
EF (NREB), tCO2/MkWh		790.00		740.00		730.00		
EF (Other Countries), tCO2/MkWh		0.00		0.00		0.00		
EF (OM Simple), tCO2/MkWh		905.736		907.752		901.733		
3 years Average EF (OM Simple), tCO2/MkWh						905.074		
Considering 20% of Gross Generation								
Sector	MkWh	%	MkWh	%	MkWh	%		
Thermal Coal Based-Eastern Region					13278.95	79.40		
Thermal Diesel Based-Eastern Region					0.00	0.00		
Thermal Gas Based-Eastern Region					0.00	0.00		
Hydro-Eastern Region					3446.12	20.60		
Wind-Eastern Region					0.00	0.00		
Nuclear-Eastern Region					0.00	0.00		
Import from Self Generating Industries					0.00	0.00		
Import from other Regions					0.00	0.00		
Import from other Countries					0.00	0.00		
Total					16725.06	100.00		
Generation by Coal out of Total Generation					13278.95	79.40		
Generation by Diesel out of Total Generation					0.00	0.00		
Generation by Gas out of Total Generation					0.00	0.00		
Built Margin								

<u>6-07</u>	<u>2007-08</u>	<u>2008-09</u>	<u>2009-10</u>	<u>2010-11</u>	<u>2011-12</u>	<u>2012-2013</u>	<u>2013-2014</u>	<u>2014</u>
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- Mar 2007														
	62.600		62.600		62.600		62.600		62.600		62.600		62.600	62.600
	62.600		62.600		62.600		62.600		62.600		62.600		62.600	62.600
	0.823		0.823		0.823		0.823		0.823		0.823		0.823	0.823
	51504.0		51504.0		51504.0		51504.0		51504.0		51504.0		51504.0	51504.0
	0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.000
	51504.0		51504.0		51504.0		51504.0		51504.0		51504.0		51504.0	51504.0

2015-2016	Apr 2016 to Oct 2016	Total
51504.0	30044.0	51504.0
0.00	0.00	0.00
51504.0	30044.0	51504.0

<u>2015</u>	<u>2015-2016</u>	<u>2016-2017</u>
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			Apr 2016 to Oct 2106
	62.600		36.517
	62.600		36.517
	0.823		0.823
	51504.0		30044.0
	0.000		0.000
	51504.0		30044.0