



Coal Mining

BSE Sensex: 14,785

S&P CNX: 4,388

17 August 2009

COMPANIES WITH SIZEABLE RESERVES

	M CAP (RS B)	RESERVES (M TONS)
NTPC	1,675	5,907
Rel Power	373	1,834
JSPL	452	532
Essar Power	N.L.	193
Tata Power	297	172
Adani Power	218	170
GVK	71	159
Jaiprakash*	284	150
GMR	235	112
Lanco	95	112
Sterlite	438	112
CESC	39	110

*Reserves in JV with State Governments Source: CEA

ESTIMATED PRODUCTION FOR KEY PLAYERS (MTPA)*

PLAYERS	FY09	FY12	FY15
NTPC	-	6.7	30.5
Rel Power	-	-	3.0
JSPL	5.5	5.5	5.5
Tata Power	-	-	2.5
GVK	-	2.0	2.0
IndiaBulls	-	4.0	5.6

* Based on CEA's review of 34 coal blocks Source: CEA

Refer to detailed report on Coal Mining plagued by inordinate delays dated August 2008



CEA appraises progress on coal blocks with reserves of 12.8b tons, linked to 36GW capacity: Of the total 77 coal mines allotted to Central, State and Private sector till date, CEA has reviewed progress on 34 coal mines (including 9 for captive power projects). The total reserves for these 34 coal mines are estimated at 12.8b tons and CEA expects these mines to start commercial production in phases by FY12-13E. The power projects linked to these coal mines are estimated at 36GW, including 2.2GW of captive power projects. The annual production from these mines is expected to increase from 8m ton in FY08, 15m ton in FY09 to 168m ton in FY18. Peak production is estimated at 213m ton per annum. Of the total 34 mines included in the review, mining plan has been approved for 29 mines, indicating major clearances are obtained.

Private sector share at 20% in reserves, 38% in planned capacity: Of the mines covered under review, Central sector has 11 coal blocks with reserves of 6.7b tons (52% of the total reserves), state sector has 10 coal blocks with reserves of 3.6b tons and private sector has 13 coal blocks with reserves of 2.5b tons. The share of Central sector in the power projects linked to these mines stands at 13.3GW (38% of the planned capacity), state sector at 8.6GW (24% share) and private sector at 13.4GW (38% share), including captive projects of 2.2GW.

Additional 43 coal blocks with reserves of 14.8b tons under development: In addition, Ministry of Coal has allocated additional 43 coal blocks to Central, State and Private sector with total reserves of 14.8b tons. We understand that only 5 out of these 43 coal blocks have received mining plan and environmental clearance approval; and others are in different stages of obtaining approvals. Given the average timeline of 5+ years, the initial commercial production from these mines can be expected only by FY12-13E onwards. We estimate that ~41GW of power projects are planned on these mines by various project developers. Private sector has 39 coal blocks with reserves of 5.8b tons (39% of total reserve) and state sector has 34 coal blocks with reserves of 8.6b tons (58% of reserves).

NTPC, Reliance Power, JSPL have the largest reserves: Of the total coal blocks allotted till date, NTPC has received 7 coal blocks with total estimated reserves of 5.9b tons whereas among the private sector players, Reliance Power has been allocated five blocks with total reserves of 1.8b tons (including 1.7b tons for UMPPs). The other key private sector players with significant reserves for power utility projects include Jindal Steel and Power (532m tons), Jaiprakash Associates (150m tons), Essar Power (190m tons), Tata Power (172m tons), Adani Power (170m tons), GVK Power (159m tons), GMR Energy (112m tons), Lanco Infratech (112m tons), Sterlite Energy (112m tons), CESC (110m tons), etc besides others.

CEA appraises progress on coal blocks with reserves of 12.8b tons, linked to 36GW capacity

Of the total 77 coal mines allotted to Central, State and Private sector till date, CEA has reviewed progress on 34 coal mines (including 9 for captive power projects). The total reserves for these 34 coal mines are estimated at 12.8b tons and CEA expects these mines to start commercial production in phases by FY12-13E. The total power projects linked to these coal mines are estimated at 36GW, including 2.2GW of captive power projects.

The annual production from these mines is expected to increase from 8m ton in FY08, 15m ton in FY09 to 168m ton in FY18. Peak production is estimated at 213m ton per annum. Of the total 34 mines included in the review, mining plan has been approved for 29 mines, indicating major clearances are obtained.

This indicates clear delay in terms of mine development, as the key objective behind award of coal blocks was to expedite the capacity addition in the 11th plan. Based on the review, the actual timeline for the development of the coal blocks works out to at least 5 years, going upto 9-10 years in some cases.

COAL BLOCKS REVIEWED BY CEA: RESERVES OF 12.8B TONS LINKED TO 36GW CAPACITY

PARTICULARS	LOA	COD	TIME FOR DEVELOPMENT (YRS)	PRODUCTION (MTON)		CAPACITY (MW)	MINING PLAN APPROVED	MOEF CLEARANCE RECEIVED
				FIRST YR	PEAK			
Central Sector								
NTPC								
Pakri Baradih	Aug-05	Mar-10	5	2.3	15.0	Bucket Mine	Y	Y
Kerandari	Jan-07	Mar-12	5	2	6.0	1320	Y	Y
Chatti Bariatu	Mar-06	Mar-11	5	1	7.0	1320	Y	Y
Dulanga	Mar-08	Mar-12	4	0.5	5.0	3200	Y	Y
Talaipalli	Sep-08	Mar-12	4	2	15.0	4000	Y	Y
Brahmini & Chichropatsimal	Jan-06	Mar-12	6	1.5	20.0	1000	Y	Y
DVC		Mar-10/Mar-11	5	8.0	15.5	2500	Y	Y
State Sector								
Parsa	Aug-06	Mar-13	7			1000	N	N
Tara	Aug-03	Mar-09	6	0.2	6.0	1320	Y	Y
Pachwara (N)	Apr-05	Mar-12	7	2	15.0	1270	Y	Y
Bajjora, Gangaramchak (Kasta) & Bhadulla-Gangaramchak (8+14)	Jun-03	Mar-09	6	0.6	1.0		N	N
Barang-I (1 to 4) Manoradeep & Kiloni (67.57+49.82+39.51)	Jul-04	Mar-09	5	1.3	2.5	750	N	N
Badam (Jharkhand)	Nov-03	Mar-10	6	0.6	3.0	420	Y	Y
Rajbar (R&D)		Mar-13		1	7.5		Y	Y
Pachwara Central	Jul-02	Mar-06	4	3	7.0	500	Y	Y
Machhakatta & Mahanadi	Dec-08	Mar-13	4	5	20.0	2,000	Y	Y

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DETAILS OF 34 COAL BLOCKS REVIEWED BY CEA

PARTICULARS	LOA	COD	TIME FOR DEVELOPMENT (YRS)	PRODUCTION (MTON)		CAPACITY (MW)	MINING PLAN APPROVED	MOEF CLEARANCE RECEIVED
				FIRST YR	PEAK			
Private Sector								
GVK								
Tokisud (N)	Jan-02	Mar-11	9	0.3	2.0	540	Y	Y
Reliance Power								
Chhatrasal					3.0	4,000	Y	Y
Indiabulls Power								
Pathuria & Gidhmuri	Oct-04	Mar-10	5	1	5.6	1,320	Y	Y
Jindal								
Gare-Palma IV 2 & 3 246	Jul-98	Mar-08	10	2.8	5.5	1,000	Y	Y
J.V of Jindal Photo, Monnet Ispat & Tata power								
Mandakini "A"	Jul-08	Mar-12	4	2.3	7.5	3,450	N	N
JV.of NLC, Hindalco & Mahanadi coal fields								
Talabira -II & III (II-152.3)	Nov-05	Mar-13	7		20.0	700	Y	Y
Nalco								
Utkal -E	Aug-04	Mar-10	6	1.3	2.0	240	Y	Y
Hindalco & Essar								
Mahan	Apr-04	Mar-10	6	2.5	8.5	1,950	Y	Y
Hindalco-Tata power (60:40)								
Tubeid	Jan-07	Mar-12	5			1,300	N	N
Hindalco								
Talabira -I	Feb-94	Mar-04	10	1.5	1.5	300	Y	Y
Others								
Utkal-D	Dec-03	Mar-08	4	2	2.0	0	Y	Y
Utkal-C	Jun-98	Mar-09	11	0.6	3.4	468	Y	Y
Gare Palme-IV/7	Jun-98	Mar-09	9	0.2	1.2	18	Y	Y
Jamkhani	Nov-03	Mar-08	4	2.6	2.6	100	Y	Y
Total				56		35,986		

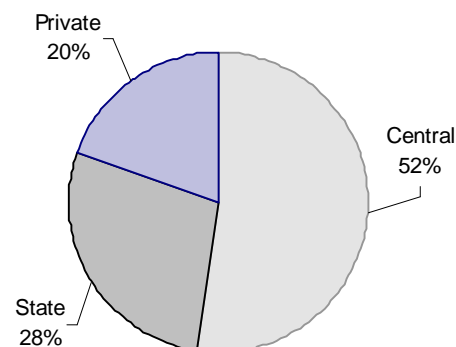
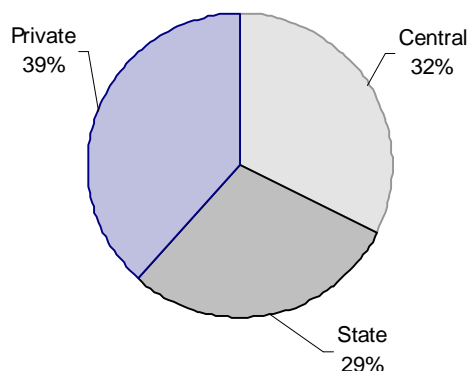
Source: CEA

Private sector share at 20% in reserves, 38% in planned capacity: Of the mines covered under review, Central sector has 11 coal blocks with reserves of 6.7b tons (52% of the total reserves), state sector has 10 coal blocks with reserves of 3.6b tons and private sector has 13 coal blocks with reserves of 2.5b tons.

ALLOCATION PROFILE OF 34 MINES (NOS)

COAL RESERVE DISTRIBUTION (B TONS)

Central sector has 11 coal blocks with reserves of 6.7b tons (52% of the total reserves), state sector has 10 coal blocks with reserves of 3.6b tons and private sector has 13 coal blocks with reserves of 2.5b tons

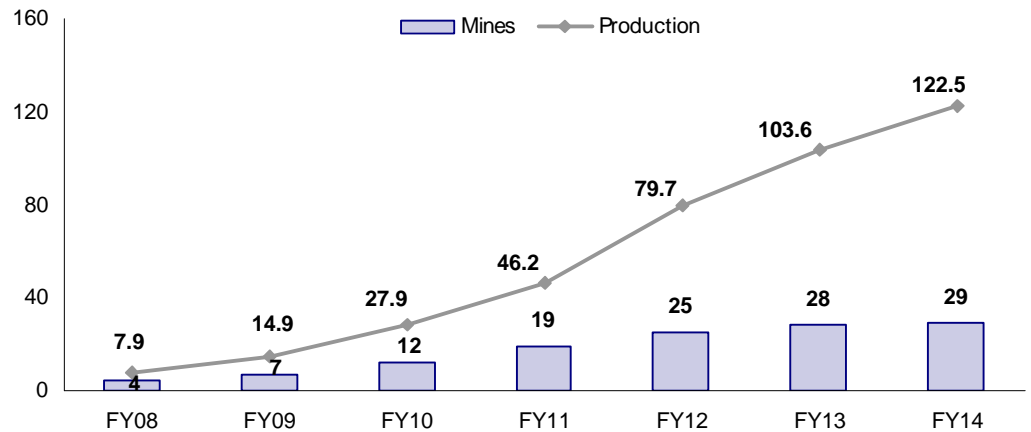


Source: CEA

The annual production from these mines is expected to rise from 8m ton in FY08 to 168m ton in FY18, while peak production is estimated at 213m ton per annum. Of the total 34 mines included in the review, mining plan has been approved for 29 mines, indicating major clearances are obtained. Out of the total 34 mines under review, 29 mines will be fully operational by FY14 with annual production capacity of 122.5MTPA.

RAMP-UP IN PRODUCTION (MTPA)

Annual production from these mines is expected to rise from 8m ton in FY08 to 168m ton in FY18, while peak production is estimated at 213m ton per annum

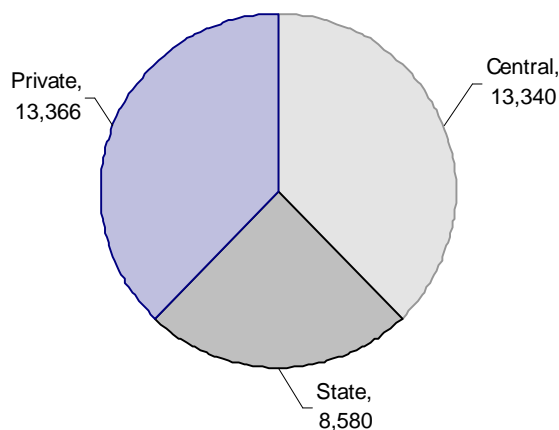


Source: CEA

The total power project capacity linked to these 34 coal blocks stands at 35.3GW, comprising of 13.3GW by Central sector (38% of the planned capacity), 8.6GW by State sector (24% share) and 13.4GW by Private sector (38% share). However, of the planned capacity addition for the private sector, projects with capacity of 2.2GW are captive power projects.

OWNERSHIP-WISE MIX OF PLANNED CAPACITY ADDITION ON CAPTIVE COAL BLOCKS (MW)

Total power project capacity linked to these 34 coal blocks stands at 35.3GW, comprising of 13.3GW by Central sector (38% of the planned capacity), 8.6GW by State sector (24% share) and 13.4GW by Private sector (38% share)



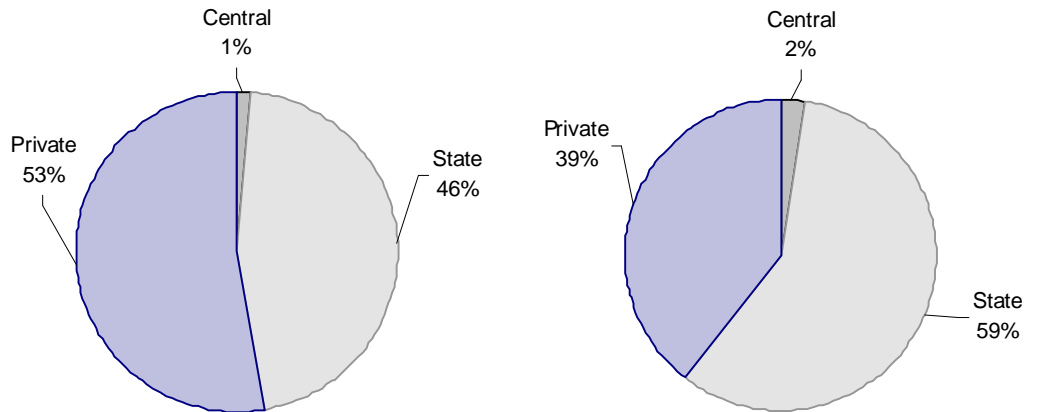
Source: CEA

Additional 43 coal blocks with total reserve of 14.8b tons under development

In addition, Ministry of Coal has allocated additional 43 coal blocks to Central, State and Private sector with total reserves of 14.8b tons. We understand that only 5 out of these 43 coal blocks have received mining plan and environmental clearance approval; and others are in different stages of obtaining approvals. Given the average timeline of 5+ years, the initial commercial production from these mines can be expected only by FY12-13E onwards.

SECTOR WISE MIX OF COAL BLOCKS ALLOCATION AND RESERVES (%)

Private sector has 39 coal blocks with reserves of 5.8b tons (39% of total reserve) and state sector has 34 coal blocks with reserves of 8.6b tons (58% of reserves)

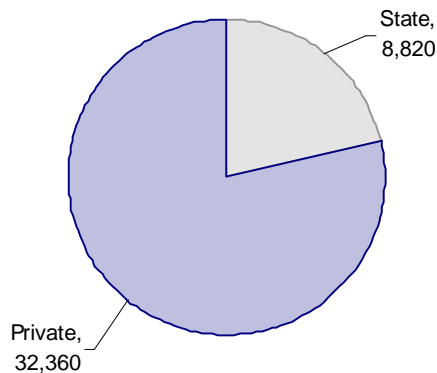


Source: CEA

We estimate that ~41GW of power projects are planned on these mines by various project developers. Private sector has 39 coal blocks with reserves of 5.8b tons (39% of total reserve) and state sector has 34 coal blocks with reserves of 8.6b tons (58% of reserves). NTPC has been awarded Chhati Bariatu South block in July 2007 with estimated reserves of 354m tons.

OWNERSHIP WISE MIX OF PLANNED CAPACITY ADDITION (MW)

5 out of these 43 coal blocks have received mining plan and environmental clearance approval; and others are in different stages of obtaining approvals



Source: CEA

Mining plan approved for only 5 out of the additional 43 blocks

Of the additional captive coal blocks, mining plan and environment clearance for only 5 blocks has been approved. These blocks constitute total reserves of 607m tons with maximum production capacity of 18.3MTPA. These blocks have been allocated to private sector players like Essar Power, Jindal Steel & Power, Adani Power Ltd etc.

The 170MT Lohara west coal block has been allocated to Adani Power Ltd for its 1980MW Tiroda power project in Maharashtra. The mining plan for the block has been approved. The estimated reserves are sufficient to feed 800MW of power project, while it has obtained linkages for the balance 1180MW. The Jitpur coal block with total reserves of 81MT (peak production of 2.5mtpa) has been allocated to Jindal Steel & Power Ltd for its captive power plant. The mining plan approval and MoEF clearance for the block has been received.

Mining plan for the Lohara West block (for Adani Power's Tiroda power project) has been approved and estimated reserves at 170m ton sufficient for 800MW project, while linkages have been obtained for 1,180MW

STATUS OF 5 OUT OF THE 43 ADDITIONAL COAL BLOCKS ALLOTTED

NAME OF THE BLOCK	STATE	TOTAL RES (MT)	PROD. CAP (MTPA)	DATE OF ALLOTMENT	UTILITY
Chakla	Jharkhand	83	5.3	20.02.2007	Essar Power
DurgapurII/Taraimar	Chhattisgarh	211	4.0	06.11.2007	Balco
Jitpur	Jharkhand	81	2.5	20.02.2007	JSPL
Lohara West Extn.	Maharashtra	170	4.0	06.11.2007	Adani Power
Tadicherla-I	AP	61	2.5	06.12.2005	AP Power Gen
Total		607	18.3		

Source: CEA

NTPC: Captive coal reserves of ~6b tons, Production of 49m ton by FY18E

NTPC has been allotted 7 mines with total reserves of 5.9b tons for its existing and additional 9.5GW of power generating capacity. However, Pakri Barwadih mine is allocated to NTPC as a bucket mines and thus, it can use this mine to feed any of its project based on the requirement. Of the total 7 blocks, the mining plan has been approved for 4 mines, and environmental clearance has been obtained for 3 mines. Further, the company has been awarded the Chatti Bariatu south block in Orissa with total reserves of 354MT. The mining plan as well as the environmental clearance for the same is pending and is in process.

The key point to note here is that the mine development for Pakri Barwadih mines is estimated at 5 years and CEA expects mine to start production in FY11E indicating significant delay in commissioning. The delay in commissioning is largely attributable to delays in obtaining environment and forest clearance and delays in land acquisition.

NTPC: STATUS OF CAPTIVE COAL BLOCKS

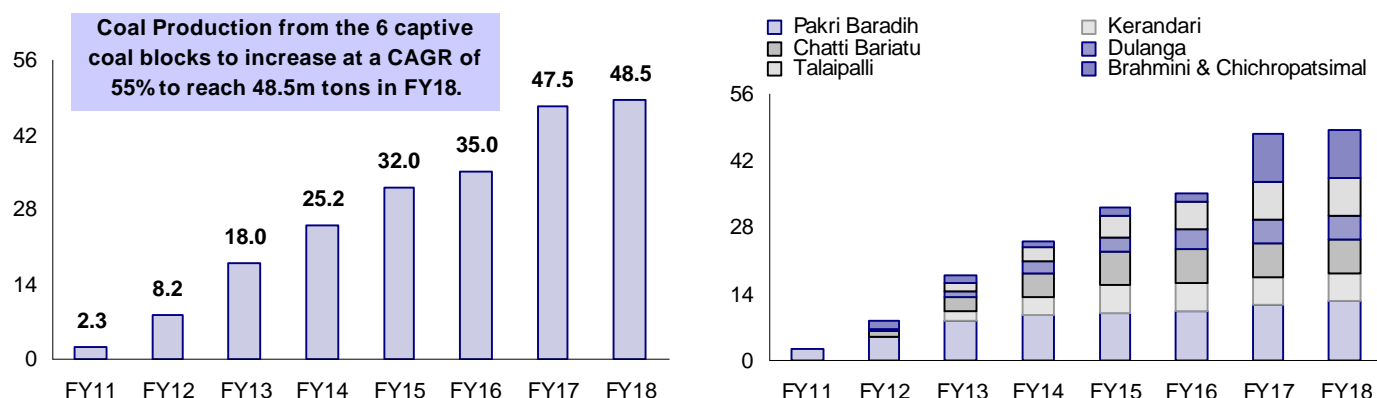
NAME OF THE BLOCK	STATE	TOTAL RES. (MT)	DT OF ALLOTMENT	COD	TIME PERIOD (YRS)	PEAK CAP. (MTPA)	MINING PLAN APPROVED	MOEF CLEARANCE RECEIVED
Pakri Baradih	Jharkhand	1,600	Aug-05	Mar-10	5	15.0	Y	Y
Kerandari	Jharkhand	229	Jan-07	Mar-12	5	6.0	Y	N
Chatti Bariatu	Jharkhand	243	Mar-06	Mar-11	5	7.0	Y	N
Dulanga	Orissa	260	Mar-08	Mar-12	4	5.0	N	N
Talaipalli	Chhatisgarh	965	Sep-08	Mar-12	4	15.0	N	N
Brahmini & Chichropatsimal	Orissa	2,256	Jan-06	Mar-12	6	20.0	N	N
Chhati Bariatu South	Jharkhand	354	Jul-07	-	-	-	N	N
Total		5,907				68.0		

Source: CEA

Production of 2.3m tons in FY11E, Peak production of 68m tons

The production from the Pakri Baradih mine is expected to start FY11E at 2.3m tons followed by Chatti Bariatu , Dulanga and Brahmini & Chichro Patsimal blocks in FY12 (3m tons) and Kerandari & Talaipalli blocks in FY13 (4m tons). The production capacity in the first year of commercial operation from the 6 blocks is expected to be 9.3m tons, which is expected to reach 48.5m tons in FY18.

EXPECTED PRODUCTION SCHEDULE FROM NTPC'S 6 CAPTIVE COAL BLOCKS



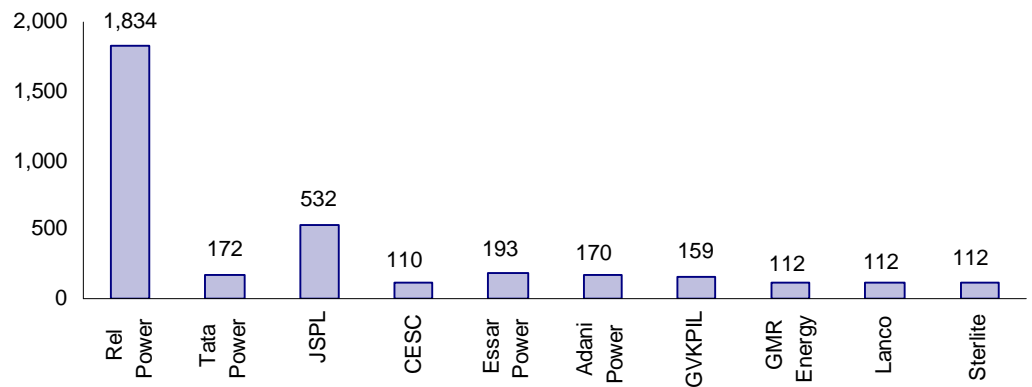
Source: CEA

Private Sector players allotted blocks with ~4b tons of reserves

Till Date, private sector has been allotted 51 mines with reserves of 8.3b tons, and large part of these mines were awarded in 2007-08. Of this, Reliance Power has been allotted five coal blocks with total reserves of 1.8b tons. These are linked to Sasan UMPP (750m tons) and Tilaya UMPP (972m tons), while it has been allotted Rampia and Dip side of Rampia in consortium with other private sector players with its proportionate reserves of 112m tons.

Amongst the other key private sector players with with significant reserves for power utility projects include Jindal Steel and Power (532m tons), Essar Power (190m tons), Tata Power (172m tons), Adani Power (170m tons), GVK Power (159m tons), GMR Energy (112m tons), Lanco Infratech (112m tons), Sterlite Energy (112m tons), CESC (110m tons), etc besides others.

RELiance Power HAS HIGHEST RESERVES OF 1.8B TONS AMONGST PRIVATE SECTOR PLAYERS



Source: CEA

Based on the CEA's review of project progress for 13 coal mines (reserves of 2.5b tons) allotted to private sector players, mining plan has been approved for 12 projects. For the other mines, we understand that mining plan has been approved for 8 blocks of the remaining 38 blocks.

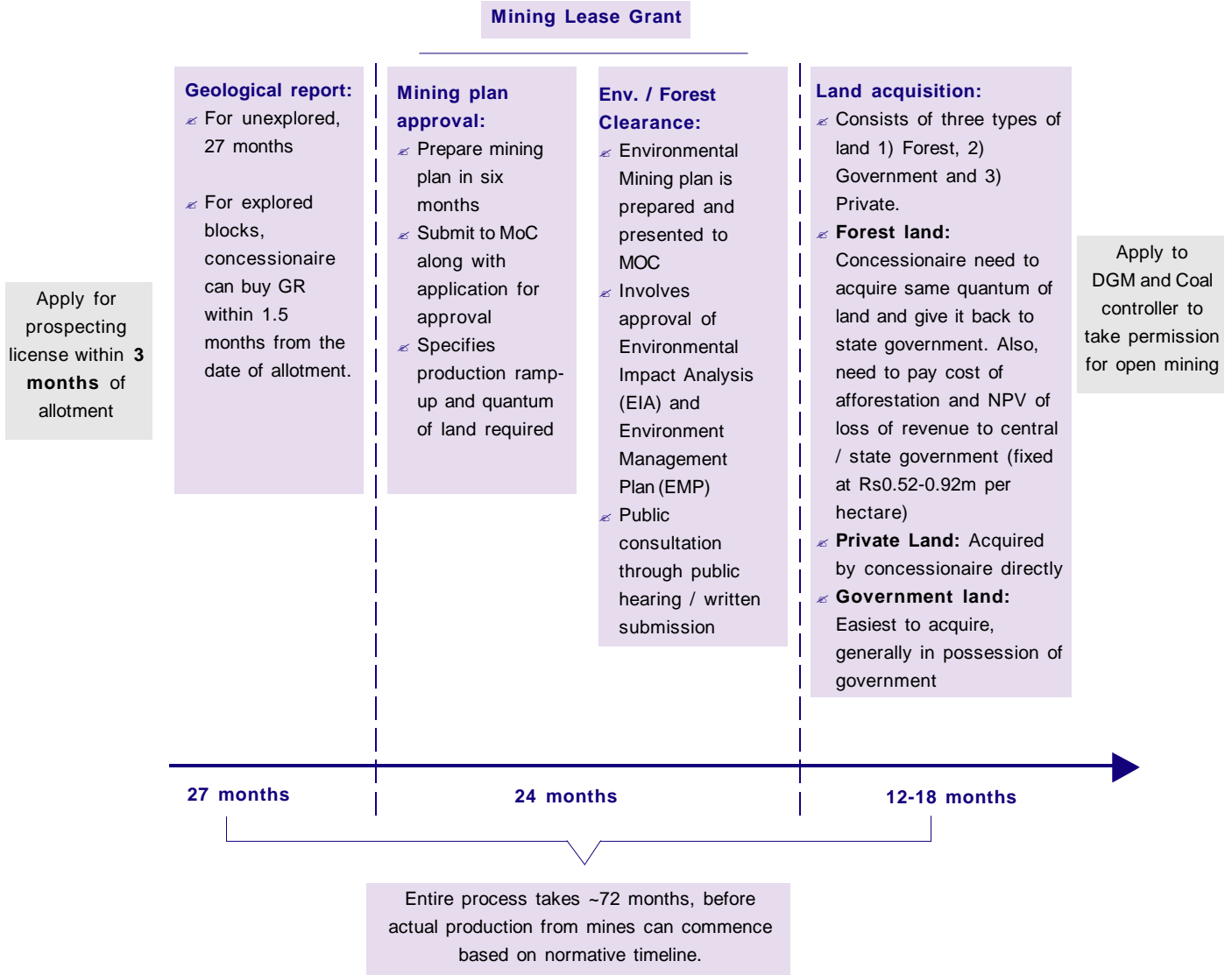
CAPTIVE COAL BLOCKS ALLOCATED TO PRIVATE SECTOR PLAYERS AND STATUS

	STATE	RES (MT)	DOA	END-USE PARTY	CAPACITY (MW)	REMARKS
Adani Power Ltd						
Lohara West Extn.	Maharashtra	170	06.11.2007	Adani Power	1,980	Mining plan & EC received; Max capacity of 4mtpa
Arcelor Mittal						
Rampia & Dip Side of Rampia	Orissa	84	17.01.2008	Arcelor Mittal		Approvals Pending
Seregarha	Jharkhand	83	09.01.2008	Arcelor Mittal		-Do-
CESC LTD						
Mahuagarhi	Jharkhand	110	09.01.2008	CESC Ltd	3,640	Approvals Pending
Essar Power						
Ashok Karkatta Central	Jharkhand	110	06.11.2007	Essar Power	1,200	Approvals Pending
Chakla	Jharkhand	83	20.02.2007	Essar Power		Mining plan & EC received; Max capacity of 5.3mtpa
GMR Energy						
Rampia & Dip Side of Rampia	Orissa	112	17.01.2008	GMR Energy	1,050	Approvals Pending
GVKPIL						
Seregarha	Jharkhand	67	09.01.2008	Goindwal Sahib	540	Approvals Pending
Tokisud	Jharkhand	92	07.01.02	Goindwal Sahib		Expected CoD in FY11; Mining plan & EC received; Max capacity of 2mtpa
JSPL						
Amarkonda Murgadangal	Jharkhand	205	17.01.2008	JSPL		Approvals Pending
Jitpur	Jharkhand	81	20.02.2007	JSPL		Mining plan & EC received; Max capacity of 2.5mtpa
Lanco						
Rampia & Dip Side of Rampia	Orissa	112	17.01.2008	Lanco	1,320	Approvals Pending
Reliance Power						
Moher	Madhya Pradesh	402	13.09.2006	Sasan UMPP	4,000	Approvals Pending
Moher-Amlori Extn	Madhya Pradesh	198	13.09.2006	Sasan UMPP		-Do-
Chhatrasal	Jharkhand	150	26.10.06	Sasan UMPP		Mining plan for 3mtpa approved
Kerandari BC	Jharkhand	972	20.07.2007	Tilaiya UMPP	4,000	Approvals Pending
Rampia & Dip Side of Rampia	Orissa	112	17.01.2008	IPP	1,320	-Do-
Sterlite Energy						
Rampia & Dip Side of Rampia	Orissa	112	17.01.2008	Sterlite Energy	2,400	Approvals Pending
Tata Power						
Tubed		76	01.08.07	Hindalco- Tata Power	500	Expected CoD in FY12; Approvals Pending
Mandakini A	Orissa	97	09.01.08	Jindal Photo, Monnet Ispat & Tata power JV	1,100	Expected CoD in FY12; Mining plan & EC received; Max capacity of 7.5mtpa

Source: CEA

Annexure 1: Coal mining takes 5-6 years for development

MINING: NORMATIVE TIMELINE SPECIFIES 72 MONTHS BEFORE PRODUCTION



Source: Ministry of Coal/MOSL

N O T E S



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