

21 March 2011 (No. of pages: 63)

Coal India (COAL IN)

6-mth rating: **2**

Target price: Rs375.00

Share price: Rs344.40 (18 Mar)

Energy: India

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Initiation: who says elephants can't dance?

Coverage initiated with a 2 (*Outperform*) rating

- We initiate coverage of Coal India (CIL), the world's largest coal producer, with a 2 (*Outperform*) rating and DCF-based six-month target price of Rs375. The company's improved ability to pass on costs, together with a rise in the price of its coal last month, easing regulatory hurdles, and a scenario with no demand risks at least from FY10-15, lead to our positive view.

Increased pricing power to mitigate cost pressure

- Last month's coal-price rise by CIL should allay investors' concerns about the ability of the company to pass on cost increases to its customers. We forecast 21% of its production to be sold at market-linked prices and for this to be a key driver in the 13% earnings CAGR we forecast from FY10-13.

Easing regulatory hurdles should make way for growth

- We believe the regulatory bottlenecks that have affected the India Coal Sector are being eased slowly but surely. We take comfort from the fact that large projects have been approved recently by the Ministry of Environment & Forest (MOEF).

Structural positioning is stronger than ever

- For FY10-15, we forecast a 12% coal-demand CAGR in India and a supply CAGR of 6%. Some 45% of CIL's approved schemes are expansion projects and we forecast production and dispatches (deliveries) to rise at CAGRs of 3% and 4%, respectively, from FY10-15.

Reuters code COAL.NS

Market data

SENSEX Index		17,878.81
Market cap	(US\$bn)	48.21
EV	(US\$bn; 11E)	39.62
3-mth avg daily T/O	(US\$m)	30.11
Shares outstanding	(m)	6,316
Free float	(%)	10.0
Major shareholder	President of India (90.0%)	
Exchange rate	Rs/US\$	45.126

Performance (%)*	1M	3M	6M
Absolute	13.9	7.4	
Relative	15.7	17.4	

Source: Daiwa

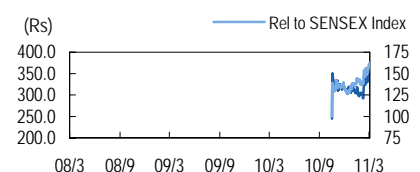
Note: *Relative to SENSEX Index

Investment indicators

		2011E	2012E	2013E
PER	(x)	20.8	17.6	15.9
PCFR	(x)	37.0	15.0	14.7
EV/EBITDA	(x)	14.3	12.1	10.4
PBR	(x)	6.5	5.1	4.1
Dividend yield	(%)	0.6	0.7	0.8
ROE	(%)	35.3	32.5	28.9
ROA	(%)	14.0	14.3	13.7
Net debt equity	(%)	net cash	net cash	net cash

Source: Daiwa forecasts

Price and relative performance



Source: Bloomberg, Daiwa

Income summary

Year to 31 Mar	Revenue		EBITDA		Net profit		EPS		CFPS	DPS
	(Rs m)	(%)	(Rs m)	(%)	(Rs m)	(%)	(Rs)	(%)	(Rs)	(Rs)
2009	387,888	18.9	24,095	(59.8)	20,775	(60.4)	3.289	(60.4)	14.301	1.830
2010	446,153	15.0	102,281	324.5	96,221	363.2	15.234	363.2	17.028	2.269
2011E	496,912	11.4	124,994	22.2	104,622	8.7	16.564	8.7	9.307	2.153
2012E	563,173	13.3	140,492	12.4	123,345	17.9	19.528	17.9	22.894	2.539
2013E	616,352	9.4	153,698	9.4	137,186	11.2	21.719	11.2	23.491	2.823

Source: Company, Daiwa forecasts

IMPORTANT DISCLOSURES, INCLUDING ANY REQUIRED RESEARCH CERTIFICATIONS, ARE PROVIDED ON THE LAST TWO PAGES OF THIS REPORT.

Global Equity Research

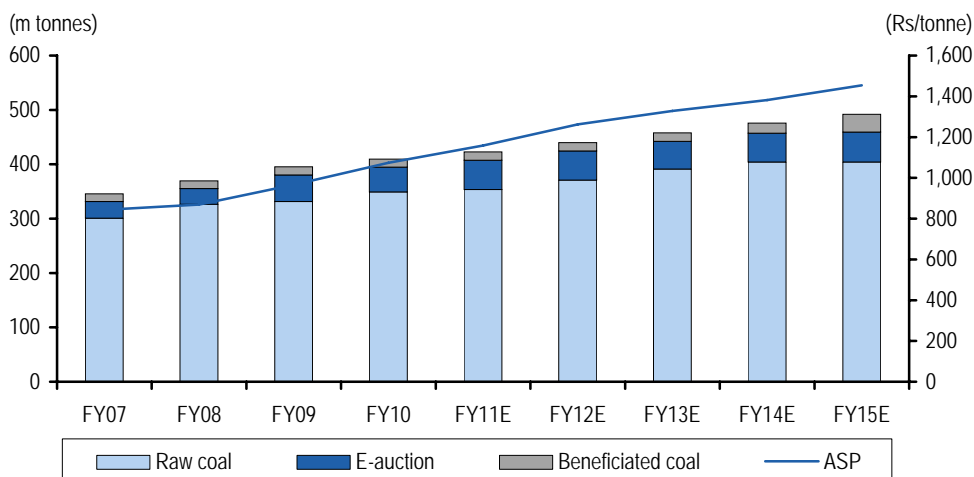
Contents

The three most important charts in this report.....	3
Executive summary	4
Coal India – financial summary	5
Valuation and target price	6
Recent price rise was a positive surprise	8
Production and dispatches: will the elephant dance?.....	16
Regulatory hurdles are being sorted out slowly but surely	23
Key assumptions	26
Key risks	32
Appendix 1.....	35
Appendix 2.....	39
Appendix 3.....	41
Appendix 4.....	44
Appendix 5.....	45
Appendix 6.....	49
Appendix 7.....	50
Appendix 8.....	51
Appendix 9.....	54

The three most important charts in this report...

We expect value-led revenue growth from FY11-13, and a change in the sales mix to drive revenue growth thereafter

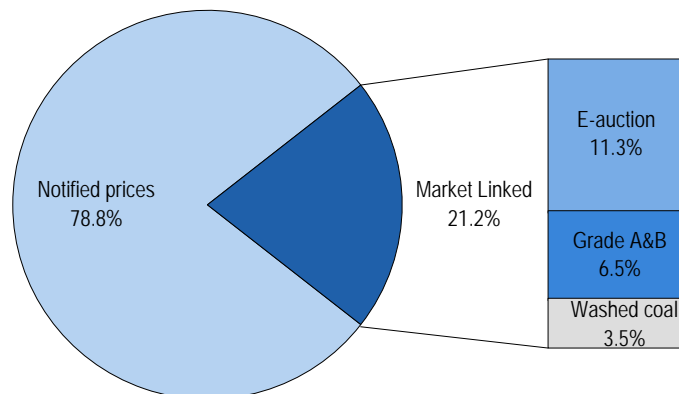
CIL: sales mix and blended ASP



Source: Company, Daiwa forecasts

We estimate grade A&B, e-auction, and beneficiated coal will amount to 21.2% of FY11 production

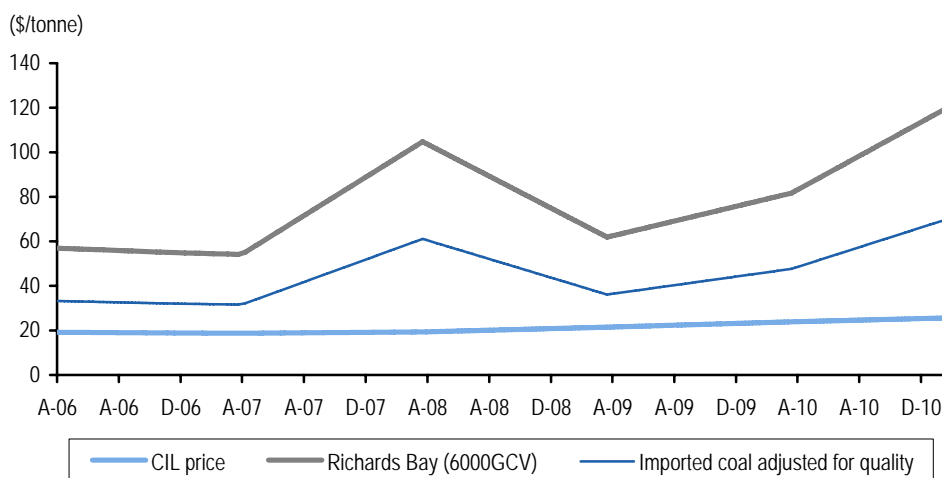
CIL: Daiwa forecast for FY11 production sold at market prices



Source: Company, Daiwa forecasts

Following the recent coal-price hike, CIL's prices will still be 40-50% lower than prices globally

CIL: company's coal price vs. imported coal price



Source: Company, Daiwa forecasts

Executive summary

Recent price rise indicates an increase in CIL's pricing power

We forecast that 34% of FY11 production will be affected by the price rise

CIL's coal-price rise on 26 February indicates to us that the company should have greater pricing power going forward. We forecast 21% of the company's FY11 production to be sold at market-linked prices compared with 15% for FY10. We believe with the coal-price rise CIL will be able to mitigate wage-related cost pressure and the impact of flat production that we expect from FY11-12 due to the implementation of the *Comprehensive Environment Pollution Index (CEPI)* regulation.

We believe the recent price rise should allay investors' concerns about CIL's ability to pass on cost increases. As a result of the price rise, we forecast CIL's FY12 consolidated ASP (Rs1,263/tonne) to be 18% higher than the FY10 reported ASP of Rs1,074/tonne. On a constant-production basis, we estimate it would affect 34% of the company's FY11 production.

Easing regulatory hurdles should make way for growth

Recent moves by the MOEF suggest it is softening its stance on environmental-related regulations

The recent measures taken by the Ministry of Environment & Forest (MOEF) to expedite the environmental approvals for a number of large projects over the past few months suggest to us that the regulatory bottlenecks faced in the past by the sector are easing. We believe the introduction of the *Mining Bill (MMDR 2011)*, the *Coal Regulatory Bill 2011*, and also the softening of the MOEF's stand on 'no-go' areas are steps in the right direction.

We forecast dispatches to increase at a CAGR of 4% from FY10-15

4% dispatch growth to be led by improving evacuation (transportation and related) infrastructure

We believe that the disruption to CIL's production from FY11-12 due to the CEPI will have no material impact on the company's dispatches. We forecast CAGRs of 4% and 3%, respectively, in dispatches and production from FY10-15. Although the availability of railway rakes remains a structural issue, we expect there to be an incremental supply of seven rakes/day by Indian Railways.

CIL's structural story is intact: no demand risk for coal in India

From FY10-15, we forecast a 12% coal-demand CAGR and a supply CAGR of 6%

CIL has an edge over its peers as it faces few demand risks. First, we forecast a 12% CAGR in coal demand from FY10-15 (driven by the addition of 77GW of thermal power capacity) and a supply CAGR of 6% (led mainly by a 17% CAGR in captive-mine output). We forecast a coal deficit of 142m tonnes for FY15 (see Appendix 3 for details). Second, despite the recent coal-price increase, we forecast CIL's blended ASP for FY12 to be US\$28/tonne (Rs1,263/tonne), which would still be at a substantial discount (40-50%) to the price of imported coal. The company has received approval for 77 projects with a capacity of 185m tpa, of which 32 projects with a peak rated capacity (PRC) of 104m tpa had started production as at the end of December 2010.

View

Based on our target price of Rs375, the implied for FY12-13 is 19x-17x

We believe CIL will benefit from increased pricing power on the back of differential pricing and an increase in market-linked production. In addition, we expect the regulatory hurdles to ease going forward, with issues such as the CEPI and 'no-go' areas resolved. With no change in the demand outlook for coal in India, we believe CIL will continue to be in a sweet spot. We initiate coverage with a **2 (Outperform)** rating and a DCF-based target price of Rs375. We believe DCF is the most appropriate method to value CIL as it captures the company's long-term earnings potential from its large coal reserves, set to be realised by a rise in production and an increase in the mix of market-linked sales.

Key risks

Land acquisitions, timely MOEF approvals, and an inadequate rail infrastructure are the key challenges for CIL, in our view.

Company background

Coal India is the largest coal-mining company in the world in terms of raw coal production (431.26m tonnes for FY10), total coal reserves (18.86bn tonnes), and resources base (64.22bn tonnes).

Coal India – financial summary

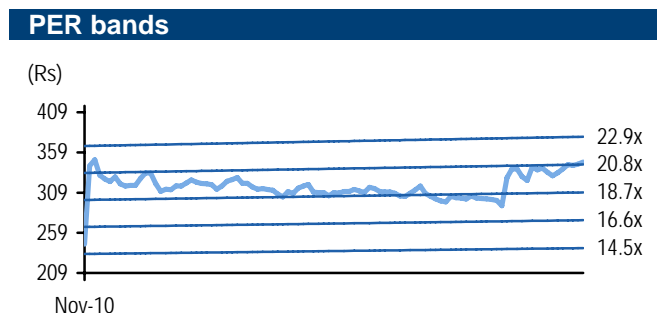
Profit and loss (Rs m)					
Year to 31 Mar	2009	2010	2011E	2012E	2013E
Coal	387,888	446,153	496,912	563,173	616,352
Others	0	0	0	0	0
Others	0	0	0	0	0
Total revenue	387,888	446,153	496,912	563,173	616,352
Other income	21,556	27,362	0	0	0
COGS	(323,177)	(298,739)	(306,017)	(351,802)	(386,385)
SG&A	(19,285)	(19,336)	(20,963)	(22,892)	(24,998)
Other op. expenses	(59,516)	(66,297)	(62,411)	(66,459)	(71,744)
EBIT	7,466	89,142	107,522	122,020	133,225
Net-interest inc./(exp.)	26,882	25,575	26,879	28,255	34,214
Assoc/forex/extraord./others	23,059	24,928	19,456	31,115	34,305
Pre-tax profit	57,407	139,646	153,856	181,390	201,744
Tax	(36,632)	(43,425)	(49,234)	(58,045)	(64,558)
Min. int./pref. div./others	0	0	0	0	0
Net profit (reported)	20,775	96,221	104,622	123,345	137,186
Net profit (adj.)	20,775	96,221	104,622	123,345	137,186
EPS (reported) (Rs)	3.289	15.234	16.564	19.528	21.719
EPS (adj.) (Rs)	3.289	15.234	16.564	19.528	21.719
DPS (Rs)	1.830	2.269	2.153	2.539	2.823
EBIT (adj.)	7,466	89,142	107,522	122,020	133,225
EBITDA (adj.)	24,095	102,281	124,994	140,492	153,698

Balance sheet (Rs m)					
As at 31 Mar	2009	2010	2011E	2012E	2013E
Cash & short-term investment	296,950	390,778	405,678	494,510	596,059
Inventory	36,666	44,015	49,691	56,317	61,635
Accounts receivable	18,475	21,686	24,846	28,159	30,818
Other current assets	117,271	86,672	124,338	140,904	154,198
Total current assets	469,362	543,151	604,553	719,889	842,710
Fixed assets	129,283	142,590	163,117	191,144	210,672
Goodwill & intangibles	0	0	0	0	0
Other non-current assets	24,600	22,479	22,479	22,479	22,479
Total assets	623,244	708,220	790,149	933,512	1,075,861
Short-term debt	19,680	16,199	13,199	10,199	7,199
Accounts payable	0	0	0	0	0
Other current liabilities	399,422	413,847	422,375	478,697	523,899
Total current liabilities	419,102	430,046	435,575	488,896	531,099
Long-term debt	1,805	4,669	4,669	4,669	4,669
Other non-current liabilities	12,238	14,774	14,774	14,774	14,774
Total liabilities	433,146	449,490	455,018	508,339	550,542
Share capital	63,164	63,164	63,164	63,164	63,164
Reserves/R.E./others	126,916	195,330	271,731	361,773	461,919
Shareholders' equity	190,080	258,494	334,895	424,937	525,083
Minority interests	19	236	236	236	236
Total equity & liabilities	623,244	708,220	790,149	933,512	1,075,861
Net debt/(cash)	(275,465)	(369,909)	(387,809)	(479,641)	(584,191)

Cash flow (Rs m)					
Year to 31 Mar	2009	2010	2011E	2012E	2013E
Profit before tax	57,407	139,646	153,856	181,390	201,744
Depreciation and amortisation	10,630	6,795	17,473	18,473	20,473
Tax paid	(27,907)	(39,990)	(49,234)	(58,045)	(64,558)
Change in working capital	56,054	22,680	(37,880)	29,817	23,931
Other operational CF items	(5,853)	(21,576)	(25,426)	(27,027)	(33,211)
Cash flow from operations	90,332	107,554	58,788	144,608	148,379
Capex	(18,746)	(19,977)	(38,000)	(46,500)	(40,000)
Net (acquisitions)/disposal	0	0	0	0	0
Other investing CF items	0	0	0	0	0
Cash flow from investing	(18,746)	(19,977)	(38,000)	(46,500)	(40,000)
Change in debt	2,646	(616)	(3,000)	(3,000)	(3,000)
Net share issues/(repurchases)	0	0	0	0	0
Dividends paid	(17,054)	(22,100)	(28,248)	(33,303)	(37,040)
Other financing CF items	29,616	28,031	26,879	28,255	34,214
Cash flow from financing	15,208	5,315	(4,369)	(8,048)	(5,827)
Forex effect/others	0	0	0	0	0
Change in cash	86,794	92,892	16,419	90,059	102,552

Key assumptions					
Year to 31 Mar	2009	2010	2011E	2012E	2013E
Coal Production (Million tonnes)	403.7	431.3	433.4	446.4	464.3
Coal Dispatch (Million tonnes)	401.4	415.4	428.9	446.0	463.9
Coal avg. blended price per tonnes (INR)	966.3	1,074.1	1,158.7	1,262.7	1,328.7

Key ratios					
Year to 31 Mar	2009	2010	2011E	2012E	2013E
Sales – YoY %	18.9	15.0	11.4	13.3	9.4
EBITDA (adj.) – YoY %	(59.8)	324.5	22.2	12.4	9.4
Net profit (adj.) – YoY %	(60.4)	363.2	8.7	17.9	11.2
EPS (adj.) – YoY %	(60.4)	363.2	8.7	17.9	11.2
EBITDA margin % (adj.)	6.2	22.9	25.2	24.9	24.9
EBIT margin % (adj.)	1.9	20.0	21.6	21.7	21.6
Net-profit margin % (adj.)	5.4	21.6	21.1	21.9	22.3
ROAE (%)	11.5	42.9	35.3	32.5	28.9
ROAA (%)	3.7	14.5	14.0	14.3	13.7
ROCE (%)	3.7	36.3	34.0	30.8	27.3
ROIC (%)	n.a.	n.a.	n.a.	n.a.	n.a.
Net debt to equity (%)	net cash	net cash	net cash	net cash	net cash
Effective tax rate (%)	63.8	31.1	32.0	32.0	32.0
Accounts receivable (days)	16.5	16.4	17.1	17.2	17.5
Payables (days)	0.0	0.0	0.0	0.0	0.0
Net interest cover (x)	n.a.	n.a.	n.a.	n.a.	n.a.
Net dividend payout (%)	55.6	14.9	13.0	13.0	13.0



Source: Company, Daiwa forecasts

Valuation and target price

We initiate coverage of CIL with a **2 (Outperform)** rating and six-month target price of Rs375 based on a DCF methodology. We believe DCF is the most appropriate method to value the company as it captures the long-term earnings potential from the company's large coal reserves, set to be realised by a rise in production and an increase in the mix of market-linked sales.

Our DCF model uses a two-stage forecast for cash flow. The first stage involves cash-flow projections up to FY30. The second stage is based on a terminal-growth-rate assumption of 2.5%. We assume a COE of 12%, to arrive at a WACC of 11.3%, assuming a target debt-to-capital ratio of 10%.

We have assumed volume growth of 4% until FY18, and then constant volume growth of 2% until FY30. Our pricing assumptions are in line with the increases in the costs, so we assume the EBITDA margin remains constant until there is change in the sales mix.

At our target price of Rs375, the stock would trade at PERs of 19.2x and 17.2x on our FY12 and FY13 EPS forecasts, respectively.

Assumptions: DCF

Risk-free rate	8%
Beta	1.00
Market-risk premium	4%
Cost of equity	12%
Gross cost of debt	7.5%
Tax rate	32%
Net cost of debt	5.1%
Target debt-to-capital ratio	10%
WACC	11.3%
Terminal growth rate (%)	2.5%

Source: Daiwa forecasts

DCF valuation

Sum of present value until FY30 (bn)	1,876
Less: net debt for FY12 (bn)	(492)
Equity value (bn)	2,369
No. of shares (bn)	6.32
Value (Rs/share)	375
Target price	375

Source: Daiwa forecasts

Sensitivity: WACC & terminal growth rate

Terminal growth rate	COE				
	11.2%	11.7%	12.2%	12.7%	13.2%
1.5%	404	385	368	352	338
2.0%	409	389	371	355	341
2.5%	415	394	375	359	344
3.0%	422	400	380	363	347
3.5%	430	406	385	367	351

Source: Daiwa forecasts

Global peer comparison

The stock is trading at a PER premium to its global peers even though the company's ASP is 40-50% lower than market-linked prices, as: 1) there is no volatility in its earnings, with 78.8% of its sales at notified prices (set by the government), 2) it is the largest company in the world based on its total coal reserves (18.86bn tonnes) and resources base (64.22bn tonnes), 3) it enjoys a strong and consistent free cash flow (FCFF) (Rs117bn for FY10), 4) we see no demand risk for the foreseeable future, and 5) we believe ASPs can only rise from here.

Global comparison												
Company	Bloomberg code	Currency	Share price (21-Mar-11)	Mkt cap US\$bn	PER (x)		EV/EBITDA (x)		PBR (x)		ROE (%)	
					2011E	2012E	2011E	2012E	2011E	2012E	2011E	2012E
China												
China Shenhua Energy*	1088 HK	Rmb	29.4	86.2	14.0	12.0	7.7	6.5	2.6	2.3	20.0	20.5
China Coal Energy*	1898 HK	Rmb	10.0	21.9	10.6	8.9	5.4	4.4	1.6	1.4	16.4	17.1
Yanzhou Coal Mining*	1171 HK	Rmb	21.3	20.6	13.2	12.6	7.9	7.1	2.5	2.2	18.6	17.1
Fushan International Energy	639 HK	HK\$	5.7	4.0	13.3	11.7	6.8	6.0	1.6	1.5	12.9	13.5
Hidili Industry International	1393 HK	Rmb	5.4	1.7	9.5	8.1	7.9	6.6	1.5	1.3	15.5	15.9
Asia ex Japan												
Adaro Energy	ADRO IJ	Rp	2,325.0	8.5	14.0	10.6	6.4	5.0	3.3	2.7	24.7	27.9
Bumi Resources	BUMI IJ	US\$	3,075.0	7.3	14.1	10.4	6.2	5.0	3.1	2.5	22.5	24.9
Banpu PCL	BANPU TB	Bt	746.0	6.7	11.3	10.3	9.0	7.8	2.6	2.2	25.6	23.5
Bayan Resources Tbk PT	BYAN IJ	Rp	17,150.0	6.6	25.9	22.7	15.3	13.4	13.6	10.0	46.9	47.9
Tambang Batubara Bukit Asam	PTBA IJ	Rp	20,600.0	5.4	13.3	11.0	8.9	7.3	5.4	4.3	46.2	43.1
US												
Peabody Energy	BTU US	US\$	70.2	19.0	14.6	11.8	8.4	6.9	3.3	2.6	24.7	23.9
Consol Energy	CNX US	US\$	53.9	12.2	19.8	12.5	9.0	6.8	3.4	2.7	18.0	23.8
Massey Energy	Mee US	US\$	62.1	6.4	17.6	11.9	7.8	6.2	2.9	2.3	18.0	22.0
Alpha Natural Resources	ANR US	US\$	55.3	6.7	12.3	9.5	5.8	5.0	2.1	1.8	18.3	21.1
Walter Energy	WLT US	US\$	116.0	6.2	9.0	8.9	4.8	4.5	4.7	3.2	72.9	46.4
Arch Coal	ACI US	US\$	34.5	5.6	13.6	9.3	6.8	5.3	2.2	1.8	15.6	21.9
					FY12E	FY13E	FY12E	FY13E	FY12E	FY13E	FY12E	FY13E
India												
Coal India*	COAL IN	Rs	347.2	48.7	17.8	16.0	12.2	10.5	5.2	4.2	32.5	28.9
NTPC*	NATP IN	Rs	173.0	31.7	14.0	12.4	11.7	10.2	1.9	1.8	14.4	15.0

Source: Bloomberg, *Daiwa forecasts

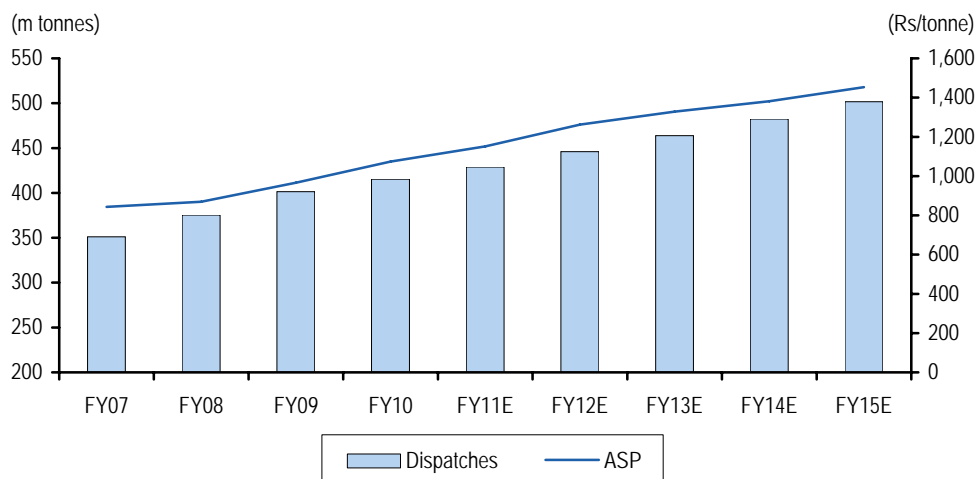
Note: prices for US companies are as at 18 March 2011

Recent price rise was a positive surprise

We forecast the recent price rise to lead to additional revenue of Rs66bn in FY12

CIL's recent coal-price rise should allay investors' concerns about the company's ability to pass on costs from rising wages and fuel prices and the impact of flat production from FY11-12. For FY12, we forecast the blended ASP to rise by 10% YoY, and additional revenue of Rs66bn on the back of the recent price increase. However, we believe the price rise will have no effect on the EBITDA margin.

CIL: dispatches and blended ASP



Source: Company, Daiwa forecasts

We expect more price rises in FY13-14

We forecast the blended ASP to rise by about 10% from FY13-14

We forecast another rise in the blended ASP of about 10%, spread over FY13-14, primarily to pass on the impact of planned wage rises in FY12. We believe it will be related to the coal supply for the Power Sector, which was excluded from the recent price increase.

Differential pricing introduced for 14% of FY11 production

The Steel (4%) and Aluminium (3%) sectors are the largest non-priority consumers

CIL has introduced the concept of 'differential pricing' for sectors that price their end products at market levels and also benefit from coal supplies at notified prices. We estimate that the raw coal sold to non-priority sectors (those other than Power, Fertiliser, and Defence) will account for about 14% (60m tonnes) for FY11 on a constant-production basis. This will allow the company to avoid raising coal prices for the Power Sector, which has a direct effect on the inflation level in India. The Power Sector accounts for about 80% of dispatches.

Dispatches to non-priority sectors (FY10)

Sector	FY10 dispatch (m tonnes)	% of FY10 production
Steel	18.6	4.3
Aluminium	13.2	3.1
Cement	9.5	2.2
Others	18.8	4.4
Total	60.0	13.9

Source: Company, Daiwa estimates

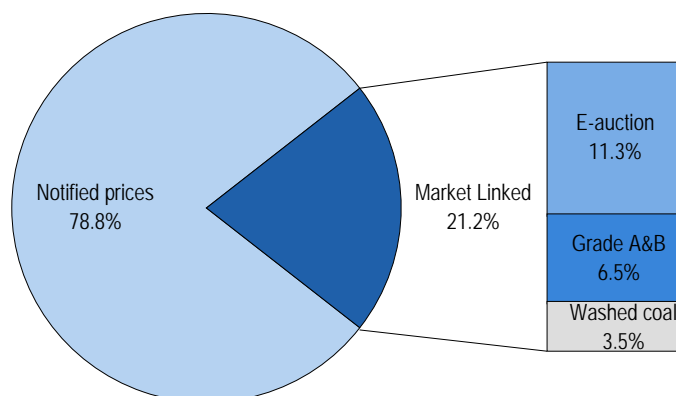
We estimate 21% of FY11 production will be sold at market-linked prices

Meanwhile, the company also has introduced market pricing for grade A&B non-coking coal (7% of FY11 production, based on our forecast). The pricing will be based on a 15% discount to the six-month average price on a particular index, such as Richards Bay (South Africa) or the Newcastle coal index.

Including e-auction sales and beneficiated coal, we forecast 21% of the company's production to fetch market prices for FY11.

CIL: Daiwa forecast for FY11 production sold at market prices

We estimate grade A&B, e-auction, and beneficiated coal will amount to 21.2% of FY11 production



Source: Company, Daiwa forecasts

The frequency of price rises has increased

The recent price rise came following a 16-month period of no changes

Last month's price rise was the first in 16 months – the previous increase in notified prices was in October 2009 – and was the fifth increase in notified prices by the company since coal prices were deregulated in 2001.

We expect another price rise in FY13, albeit smaller than the last, to factor in the impact of the wage rises resulting from the 7th Pay Commission's recommendations. The company will start providing for the wage increase in FY12.

CIL: coal-price rises since 2001

Date	Price increase (%)
1 Jan 2001	8.5
15 Jun 2004	16.2
12 Dec 2007	10.0
16 Oct 2009	11.0
26 Feb 2011	10.0

Source: Company

We estimate 34% of FY11 production will be sold at the new price

On 26 February, CIL raised prices at three levels, which resulted in a 10% increase in the company's blended ASP.

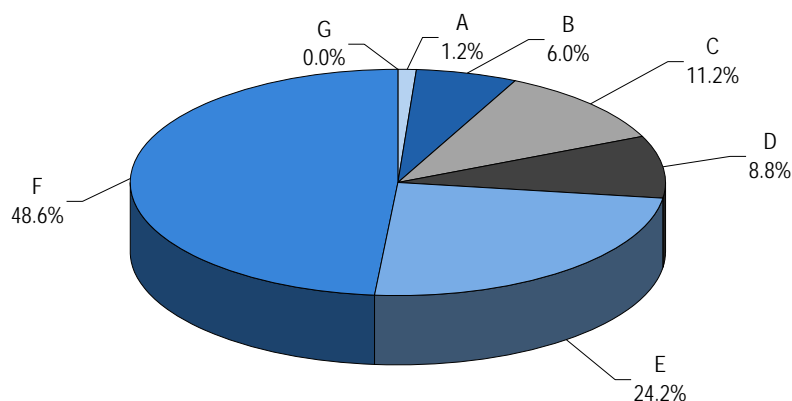
CIL: price-rise categories

	% of FY11 production	Basis of price increase	% increase in price
Non-coking grade A&B	7	Benchmarked to an international coal index with a 15% discount	100-120
Coal produced at Mahanadi Coal Fields	24	Brought in line with South Eastern Coal Fields notified prices	20-50
Non-priority sector customers	3	Prices raised by 30%	30

Source: Company, Daiwa forecasts

- **Prices for non-coking grade A&B coal** are now benchmarked to an international coal index with a 15% discount. There have been increases of 100-120% in the prices of these grades of coal, which account for about 7% of our FY11 production forecast.

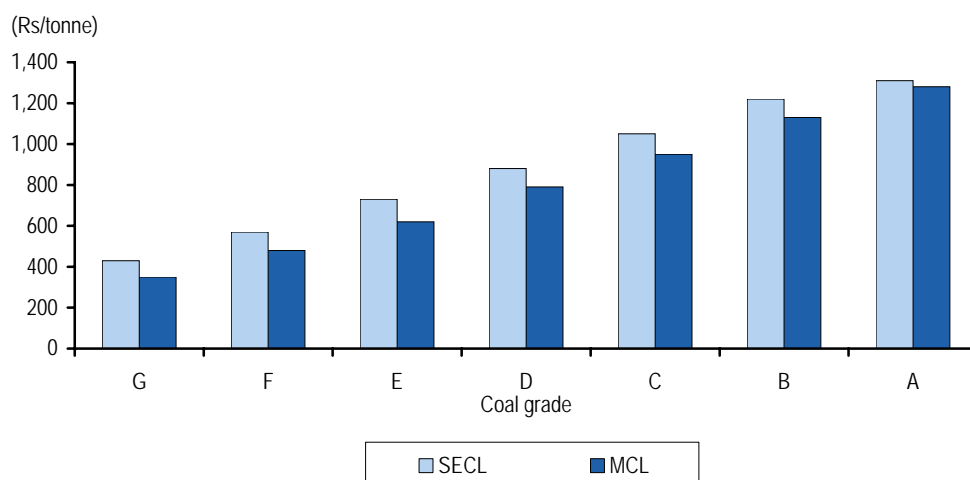
Non-coking coal production by grade



Source: Company

- The prices of the coal produced at Mahanadi Coal Fields (MCL) have been brought in line with those of South Eastern Coal Fields (SECL).** Prior to the price rise, the pricing differential between MCL's and SECL's coal ranged from 3-19% depending on the grade. MCL's ASP for FY10 (Rs622/tonne) was 42% below the blended ASP of CIL, of Rs1,074/tonne. Hence, there has been a 20% increase in the selling prices to customers in the Power Sector, and about a 50% increase in selling prices to customers in the non-priority sectors. MCL was hived off from SECL in 1992: the coalfields had almost similar quality/grades of coal, but prices were kept at a discount, an anomaly that has now been rectified.

Price differential of 3-19% that existed between MCL and SECL



Source: Company

MCL: coal prices revised for power sector by 20% and for others by ~50%

	Previous prices Rs/tn	New prices Rs/tn		% increase	
		Power	Others	Power	Others
Long-flame coal					
Grade A	1,430	4,100	4,100	187	187
Grade B	1,290	3,990	3,990	209	209
Grade C	1,080	1,180	1,530	9	42
Grade D	920	1,010	1,310	10	42
Non long-flame coal					
Grade A	1,280	3,690	3,690	188	188
Grade B	1,130	3,590	3,590	218	218
Grade C	950	1,050	1,370	11	44
Grade D	790	880	1,140	11	44
Grade E	620	730	950	18	53
Grade F	480	570	740	19	54
Grade G	350	430	560	23	60

Source: Company

- **A 30% increase in notified prices for customers in non-priority sectors.** All sectors, other than the Power, Defence and Fertiliser, are considered 'non-priority'. We forecast about 7% of FY11 production by CIL will be sold under this category.

Power Sector largely unaffected so far

The price of coal destined for the Power Sector may be raised in FY13

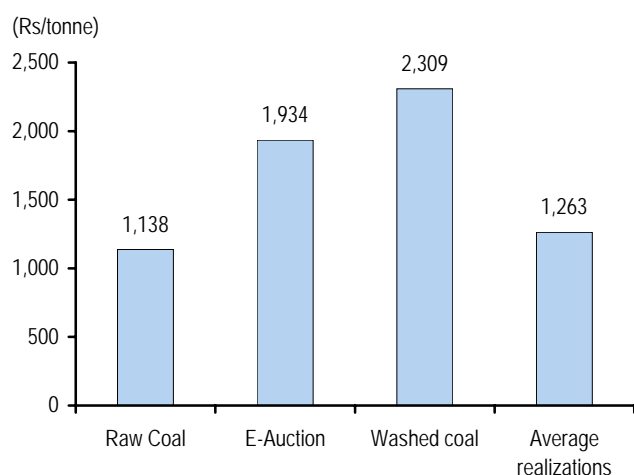
CIL's coal prices for the Power Sector were unchanged for the most part, except for those power companies sourcing their coal from MCL or using high-grade A&B coal. This was due to the present macro environment, as any increase in the cost of producing power would have a multiplier effect on inflation.

However, we believe CIL will have to raise its prices in FY13 to pass on fully the impact of the planned wage rises in July 2011. Our assumption of a 10% increase in the company's blended ASP in FY13-14 aims to factor this in.

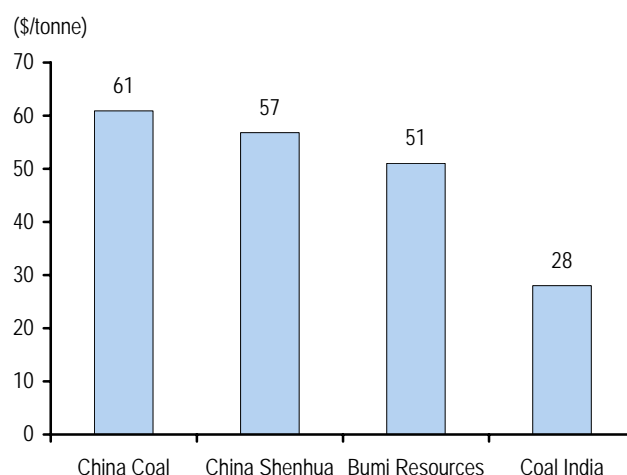
Blended ASP would still be at a substantial discount to those of its international peers

Following the price rise, CIL's blended ASP is still 40-50% lower than prices globally

Despite the price rise, CIL still has one of the lowest ASP among its international peers. We forecast its blended ASP for FY12 to be US\$28/tonne (Rs1263/tonne), at a substantial discount to its Asia peers. Even after adjusting for the difference in the gross calorific value (GCV) between imported coal and that of CIL, there is a 50% discount in the company's selling price.

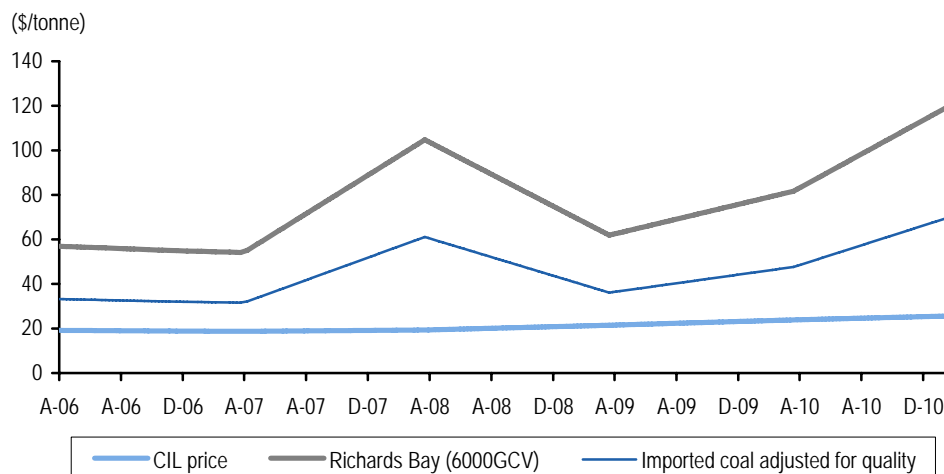
CIL: FY12E ASP by product

Source: Company, Daiwa forecasts

CIL: ASP vs. Asia peers

Source: Company, Daiwa forecasts

Note: Data for China Coal, China Shenhua and Bumi Resources is for 2009, and for CIL is for FY12E

CIL: price vs. imported coal price

Source: Bloomberg, Company

Beneficiation and e-auctions should help in achieving parity in pricing

The ASPs of washed and e-auction coal were 120% and 70% higher, respectively, than that of raw coal for FY11

Beneficiated coal and e-auction sales accounted for 15% of total dispatches by CIL for FY10. These enjoy significantly higher ASPs than raw coal. We forecast the ASP of washed coal to be 120% higher than CIL's raw coal (Rs1,034/tonne) for FY11, while that of e-auction coal was 70% higher. Coal sold in both these ways also contributes significantly to the company's operating margin.

Coal beneficiation ... a story for FY14 and beyond; we forecast 60m tonnes by FY17

Orders for six (42m tpa) of 20 (111m tpa) washeries have been placed; for the balance a common bidding document has been finalised

CIL plans to set up 20 coal washeries with a cumulative capacity of 111m tonnes at a capex of Rs24bn. The company plans to phase out its existing capacity of 39m tonnes a year gradually as the capacity-utilisation rate is about 35%.

The incremental cost of washing coal is US\$2/tonne, but the GCV improves by 15%, while the ASP is only 10-15% lower than for coal imported from Indonesia. For FY10, the company achieved a rate on washed coal sales of Rs2,136/tonne (US\$49/tonne).

CIL expects its 111m-tonne coal-beneficiation capacity to be operational by FY17. The company expects a faster-than-usual implementation as 18 of the 20 projects will be awarded on a build-operate-maintain (BOM) basis, with the other two to be managed in-house.

Based on our channel checks, we understand that the company has already awarded letters of intent for three washeries (20m tonnes), and shortlisted bidders for three others (22.5m tonnes). For the balance of 11 projects planned on a BOM basis, the company will put out tenders using a common bidding document, which should lead to a shorter process than if the tenders were issued on an individual basis.

Status of 20 washeries (111m tn)

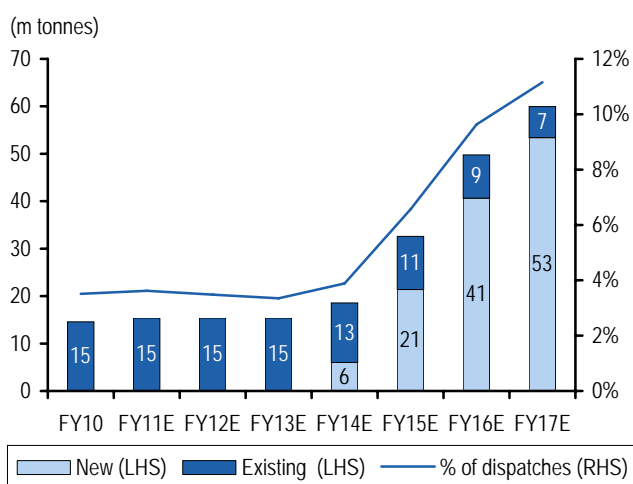
Washery	Subsidiary	Capacity (m tpa)	BOM/turnkey	Status
Madhuband	BCCL	5.0	BOM	Letter of assurance (LOA) issued; awaiting environmental approval
Patherdih	BCCL	5.0	BOM	Tender issued
Dugda	BCCL	2.5	BOM	Tender issued
Dahibari	BCCL	1.6	BOM	Tender issued
Patherdih	BCCL	2.5	BOM	Part of common evaluation process
Dhori	CCL	2.5	Turnkey	
Total coking washeries		19.1		
Ashoka	CCL	10.0	BOM	LOA issued; terms of reference submitted
Basundhara	MCL	10.0	BOM	LOA issued; environmental approval applied for
Jagannath	MCL	10.0	BOM	Tender issued
Chitra	ECL	2.5	BOM	
Sonpurbazari	ECL	8.0	BOM	
Bhojudih	BCCL	2.0	BOM	
Karo	CCL	2.5	BOM	
Konar	CCL	3.5	BOM	
Kusmunda	SECL	10.0	BOM	Part of common evaluation process
Baroud	SECL	5.0	BOM	
Hingula	MCL	10.0	BOM	
IB Valley	MCL	10.0	BOM	
Kolarpimpri	WCL	5.0	BOM	
New Piparwar	CCL	3.5	Turnkey	
Total non-coking washeries		92.0		
Total		111.1		

Source: Company

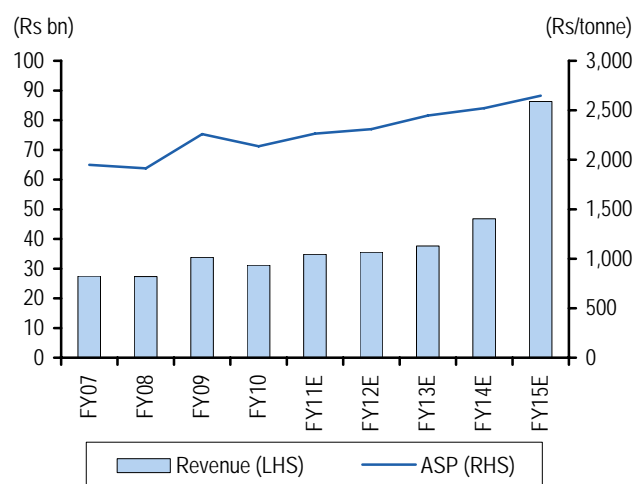
Our forecasts for washed coal are substantially lower than those of management

All our forecasts factor in delays of 1-2 year in approvals

However, our forecast for the capacity to be added by FY17, of 53m tonnes (plus 7m tonnes from existing projects), is a lot lower than the guidance from the company, as we factor in delays of 1-2 years to receive the necessary approvals. We expect the full capacity of 111m tonnes to be operational by FY22.

Ramp-up in washed-coal dispatches

Source: Company, Daiwa forecasts

Revenue and ASP from washed-coal sales

Source: Company, Daiwa forecasts

E-auction: moving to market pricing

E-auction aids price discovery of raw coal

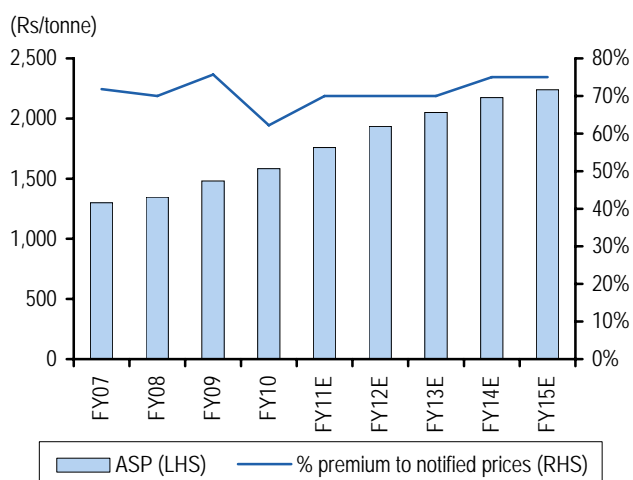
The recent price rise by the company has set the floor in the premium that e-auction prices have over notified prices at 30%. However, e-auction prices have always been at a premium of more than 30% to notified prices since they were introduced in FY06.

E-auction prices at 81% premium to raw coal in 9MFY11

Some 11% of FY10 dispatches were through e-auction and the ASP was Rs1,583/tonne (US\$35/tonne), which was 62% higher than the notified raw-coal prices. From January-September FY11, CIL dispatched 32.3m tonnes of coal through this channel (10.5% of total dispatches), and achieved an 81% premium to the ASP for raw-coal prices.

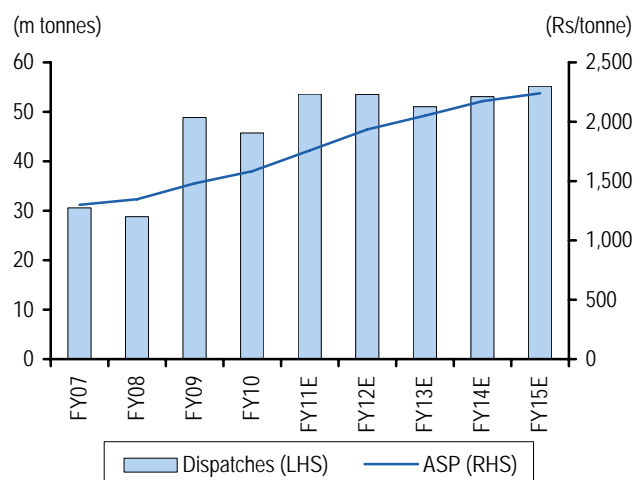
We forecast e-auction volume to amount to 49m tonnes for FY11 compared with 43m tonnes for FY10, and for the ASP to be 70-75% higher than that for raw-coal prices.

E-Auction ASP vs. notified coal prices



Source: Company, Daiwa forecasts

E-auction volume and ASP



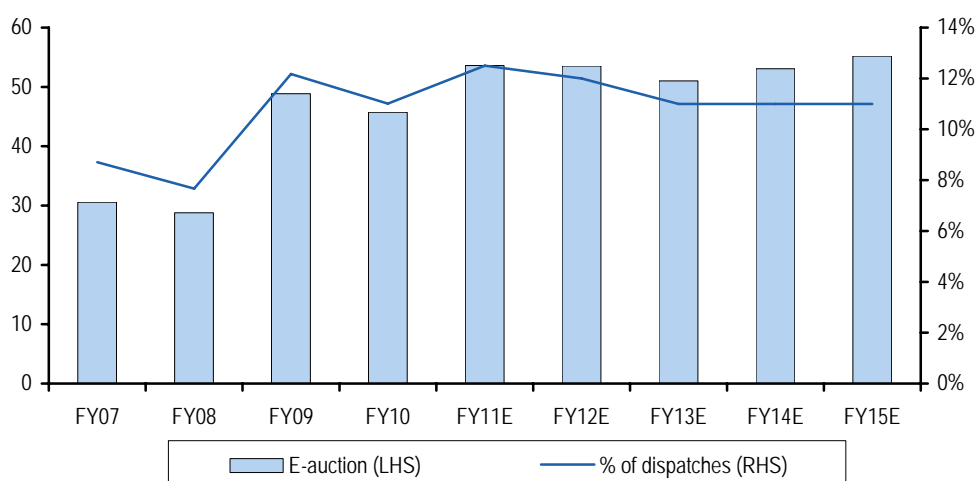
Source: Company, Daiwa forecasts

Rise in e-auction dispatches would help maintain operating profitability for FY11-12

CIL's strategy to cope with production cuts and inadequate railway rake availability at some of its mines is to push most of its inventory through the e-auction channel, for which most of the deliveries are by road. This, we believe, is aimed at maintaining dispatch growth despite production cuts and helping to maintain profitability, as the ASP of coal sold through e-auctions is 70% higher than the notified prices.

The management has indicated that the e-auction volume could increase from the current 11% of dispatches to about 12-13% for FY12. We estimate that a 1% rise in the proportion of e-auction dispatches results in earnings increasing by 2%.

E-auction sales as a % of total dispatches



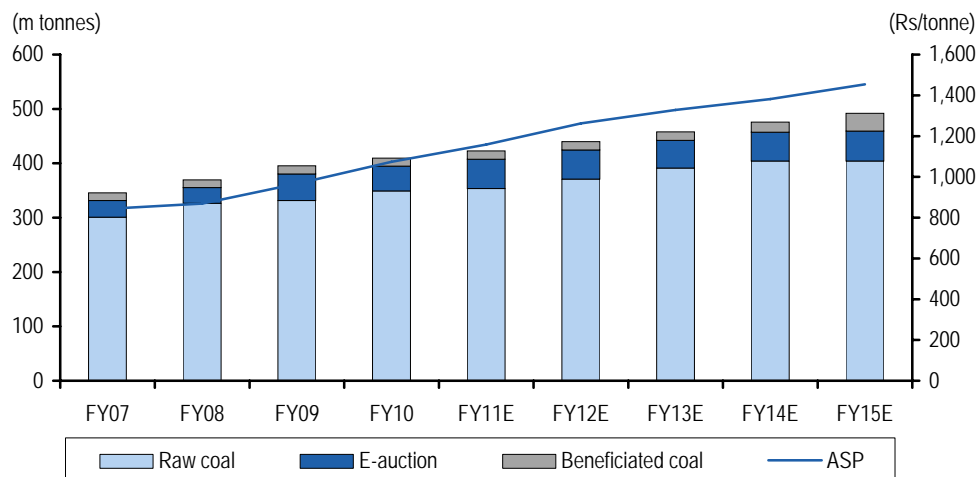
Source: Company, Daiwa forecasts

We assume no major change in the sales mix for FY11-13; price rises should be margin neutral

Margins should be maintained as no change expected in sales mix for FY11-13

We assume no major change in CIL's sales mix over the next three years. We also believe that price rises would have no effect on the EBITDA margin. As a result, we forecast margins to be flat for FY11-13, at 25%.

CIL: sales mix and blended ASP



Source: Company, Daiwa forecasts

Production and dispatches: will the elephant dance?

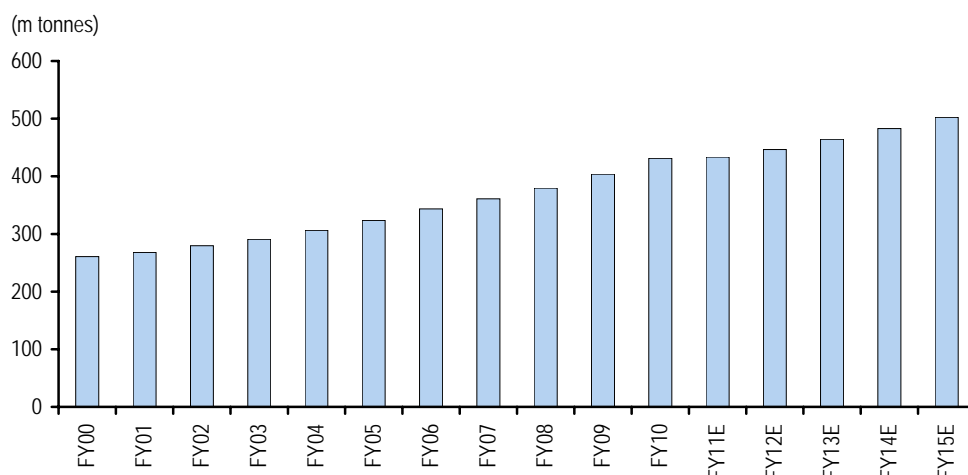
We forecast a production CAGR of 3% from FY10-15

Our forecasts are below the past 10-year average

We forecast production to rise from 431m tonnes for FY10 to 497m tonnes for FY15

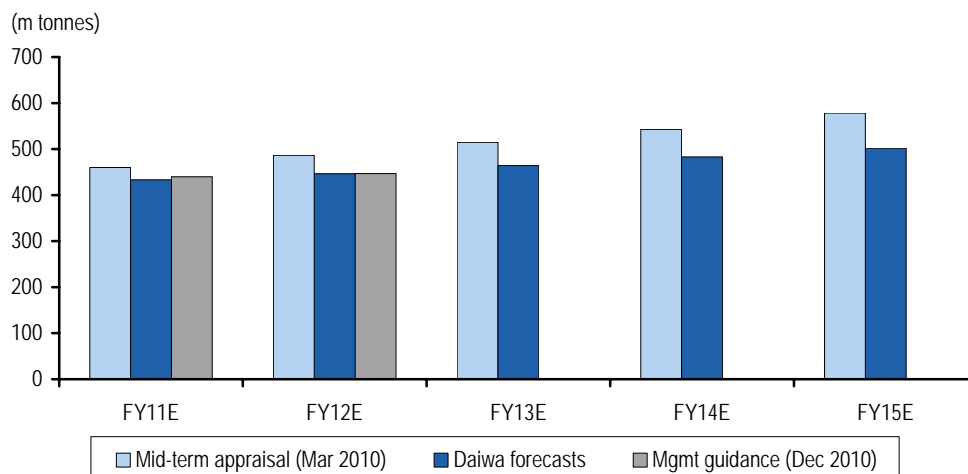
The company's production over the past 10 years has increased at a 5% CAGR. However, from FY10-15 we forecast a 3% CAGR, as we believe that issues such as environmental and forestry approvals and timely land acquisitions have become increasingly difficult. Our forecast is lower than management's guidance of a 5.5% YoY rise in production beyond FY13.

CIL: production



Source: Company, Daiwa forecasts

CIL: company guidance vs. Daiwa forecasts for production



Source: Company, Daiwa forecasts

We forecast lower production growth because ...

Our view of a lower growth rate than the company's guidance is supported by the following.

CEPI, environmental approvals and inadequate evacuation infrastructure likely to limit production growth

- Short-term issues such as the implementation of the CEPI (discussed later in this report), which should result in flat production growth from FY11-12.
- The perennial issues of environment and forestry approvals and land acquisition, which usually take much longer than management expect.
- Most importantly production would be constrained by lower dispatches on account of inadequate evacuation infrastructure.

A 3% CAGR in production should be achievable

Although we expect production growth to be flat from FY11-12, we forecast a production CAGR of 3% from FY10-15. The two reasons for this are:

- the potential resolution of the CEPI-regulation issue by FY12 and also a more relaxed stance by the MOEF on other issues, such as no-go areas, and
- 45% of the mines that have received all the necessary approvals are expansion projects, and so these will take less time than the other projects to start operating once the above issues have been sorted out.

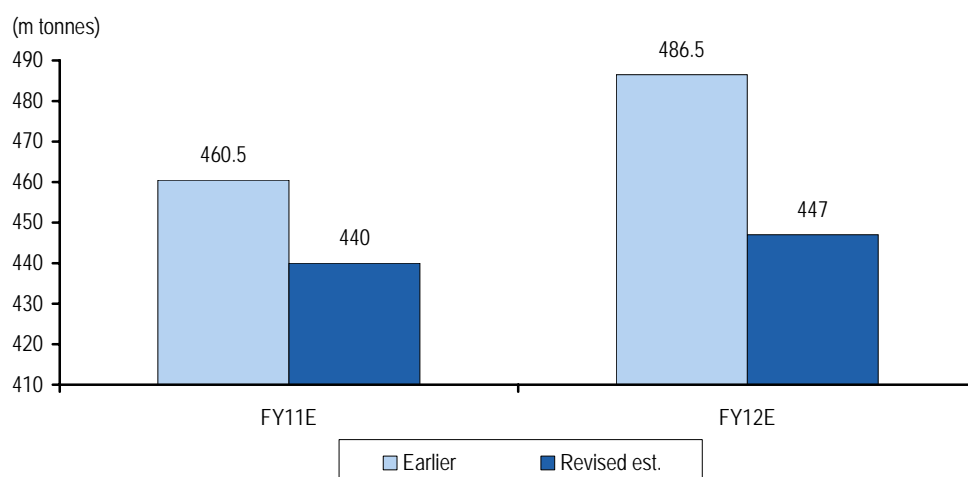
Impact of the CEPI should be mitigated by the recent 10% price rise

FY11-12 production guidance revised down by 3% and 8%, respectively

CIL recently revised down its production guidance for FY11 and FY12 to 440m tonnes (from 460.5m tonnes) and 447m tonnes (from 486.5m tonnes), respectively. This was due primarily to the implementation of the CEPI in January 2010. The CEPI regulation states that any industrial cluster with a pollution index level of more than 70 will not be allowed to operate until they have achieved a level below 70. As a result, the new mines and expansion projects planned by CIL have not been granted environmental approval over the past 12 months.

Impact of the CEPI on production should be mitigated partly by the recent 15% price rise

CIL: revisions to production guidance for FY11 and FY12



Source: Company

CEPI has impacted coal fields that contributed 48% of FY10 production

We believe four of CIL's major coalfields have been affected by the implementation of the CEPI: *Talcher, Korba, Ib Valley, and Jharia (Dhanbad)*. Combined, they accounted for 48% of the company's FY10 production, and hold 56% of the proven reserves. Although production at existing mines has not been affected by the CEPI, the expansion projects and new mines that were expected by the company to contribute during FY11-12 have been held up as no environment approvals have been granted. These projects were expected by the company to add 16m tonnes to production in FY11 and 39m tonnes in FY12.

Management estimates FY12 production will be 39m tonnes lower due to the CEPI

CIL: CEPI scores of major coalfields

Industrial cluster	Pollution index			CEPI score	% of production FY10	% of reserves FY10 (JORC)
	Air	Water	Land			
Korba	67	57	73	83	18	13
Talcher	64	69	66	82	14	27
Dhanbad	65	59	66	79	6	3
Ib Valley	61	57	59	74	10	13

Source: Company, MOEF

We expect a resolution to the CEPI issue in FY12, and business as usual from FY13

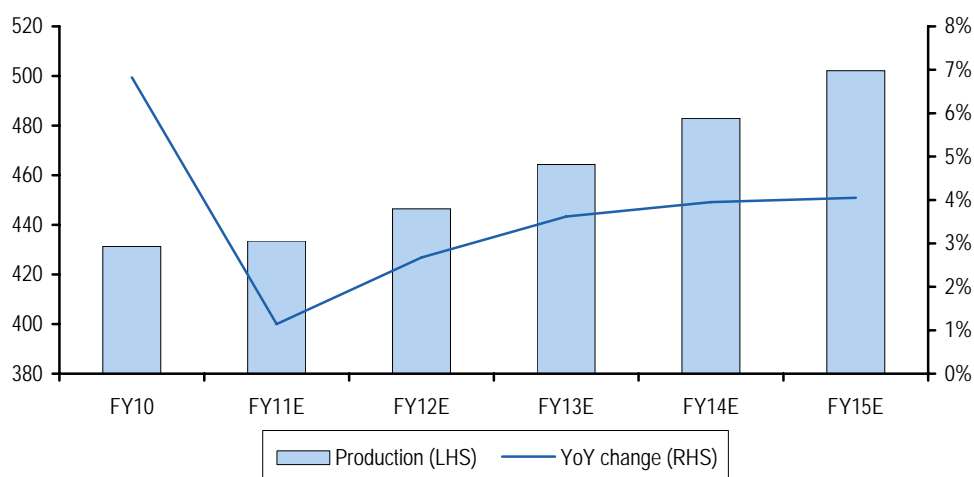
A review in March 2011 could improve FY13 production

The MOEF has planned a meeting in March 2011 to review the impact of the CEPI. Any extension of the CEPI beyond March would result in CIL's FY13 production being affected negatively. However, we believe the company is likely to contest the blanket approach used by the MOEF to calculate the CEPI of a cluster. CIL believes (based on its own studies) that coal-mining by its nature has a CEPI score of more 70, and that it is mostly the pit-head consumers that account for the pollution. Hence, the company has proposed that the MOEF takes an industry-based approach, whereby coal mining would be unaffected due to its relatively low contribution to pollution.

We forecast production growth to return to 4% YoY for FY13 as we believe that CIL's reasoning for its proposal is sound. Hence, if the CEPI standards for the industry are relaxed after March, we believe it is reasonable for the company to increase its production by 4% YoY for FY13, as it takes 9-12 months for the production to start at a mine once all the necessary approvals have been received and the overburden removed. However, if the CEPI standards were to remain in place, there would be downside risk to our forecasts for FY13 and beyond. However, we think this is unlikely as the MOEF has softened its stance and has approved 16 coal blocks that had been affected by the CEPI.

Our estimates factor in relaxed CEPI norms

CIL: production



Source: Company, Daiwa forecasts

10% price rise should offset partly the impact of a reduction in production

With the recent price rise of an average of 10% in FY12, we believe the impact of a reduction in production on account of the CEPI will be mitigated to some extent.

Future expansion plans appear to be intact

11th Five-Year Plan target: 22% of projects are operational

At the start of India's 11th Five-Year Plan (2007-12), CIL planned 142 projects that would contribute 381m tpa (PRC) to production by FY12. However, the company has received approval for only 77 projects with a capacity of 185m tpa (48.5% of the total planned production), of which 32 projects with a PRC of 104m tpa was being produced as at the end of December 2010 and these projects contributed 57m tonnes (15% of the planned production) to production in FY10.

CIL: progress on 11th Five-Year Plan projects

11th Five-Year Plan target: 142 mines, PRC of 381m tpa

Approvals received: 77 mines, PRC of 185m tpa

Under production: 32 mines, PRC of 104m tpa

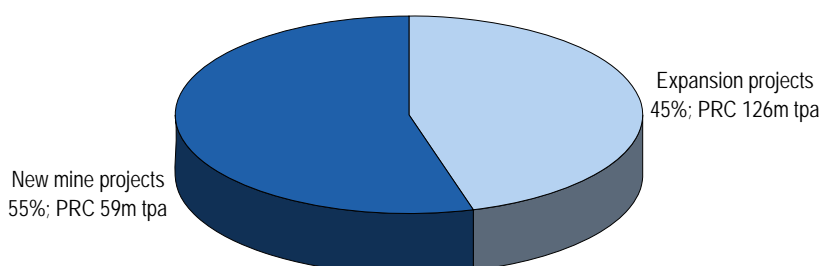
Source: Company, Daiwa forecasts

45% of the company's approved mines are expansion projects

The company's expansion projects could contribute 126m tpa once fully operational

Of the 77 mines that have received all the necessary approvals, about 45% are expansion projects (PRC of 126m tpa), which should therefore be able to ramp up production more quickly than the other mines as the geological reports for these have been prepared, which itself takes 24 months. The company has also gone ahead with removing overburden at many of the mines that have been affected by the CEPI. Hence, we believe that once issues relating to the problems of the CEPI and no-go areas have been resolved, production growth could rise from 3% YoY for FY11-12 to 4% from FY13 onwards.

CIL: approved mine projects



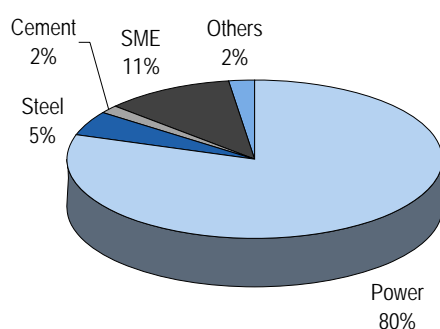
Source: Company, Daiwa forecasts

The issue is dispatches, not production

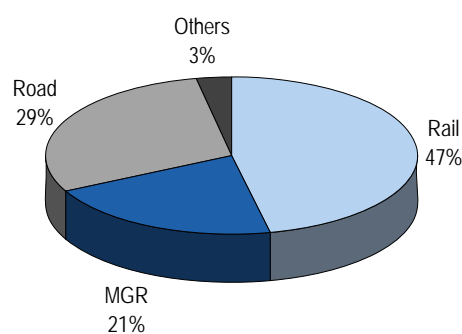
We forecast a long-term dispatch CAGR of 4% from FY10-15

Dispatch is a bigger concern for us than production; we forecast a 4% CAGR in dispatches from FY10-15

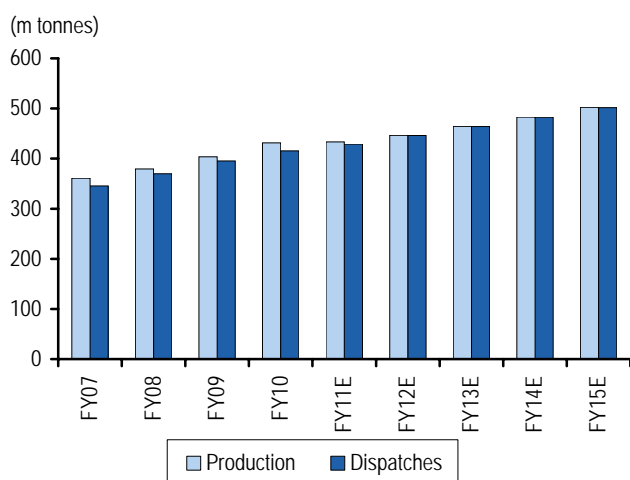
The company will produce only what it can dispatch. We expect production growth to mirror that of dispatches over FY12-15. Hence, we believe that a greater threat to dispatch growth is inadequate transportation infrastructure rather than increases in production. Rail-wagon availability, rail sidings, roads and loading facilities are the basic infrastructure requirements at a mine. The lack of proper infrastructure has led to rising coal inventory, which increased from 33m tonnes for FY06 to 63 m tonnes for FY10.

CIL: dispatches by customer

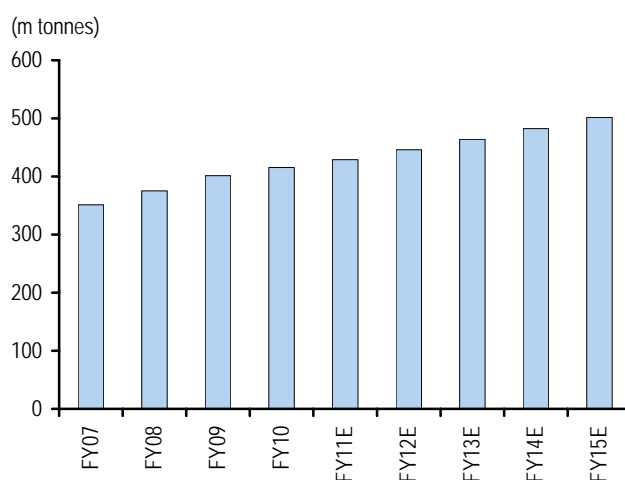
Source: Company, Daiwa forecasts

CIL: mode of dispatchesSource: Company, Daiwa forecasts
Note: refers to merry-go-round**Our forecasts are lower than the past 10-year average CAGR of 4.6%**

CIL's dispatches increased at a CAGR of 4.6% from FY00-10, from 264m tonnes to 415m tonnes. Our forecast of a CAGR of 4% from FY10-15 is lower than the past 10-year average as we believe that the pace of infrastructure construction has not kept pace with the rise in production. For instance, from FY03-10 total dispatches increased by a CAGR of 5.3%, but the availability of railway rakes rose by a CAGR of only by 2.6% (about 47% of CIL's dispatches are by rail).

CIL: production and dispatches

Source: Company, Daiwa forecasts

CIL: dispatches

Source: Company, Daiwa forecasts

FSA/MOU targets will be met despite flat production in FY11-12**We see no risk to CIL's FSA/MOU commitments in FY11-12**

Aided by an opening inventory of 63m tonnes in FY11, we believe the company will be able to mitigate the shortfall from inadequate production in FY11-12. We estimate that total coal availability (production plus inventory) for CIL in FY11 is about 500m tonnes, compared with its fuel-supply agreement (FSA) and memorandum of understanding (MOU) targets of 430m tonnes based on 100% of the requirement by its customers.

CIL does not need to supply the full requirement under its commitments (FSA). The company supplies the coal depending on the penalty thresholds for respective customers. For instance, its FSA with the power companies states that it has to supply 90% of annual contracted quantity. However, for non-power customers the penalty threshold is a lot lower, at 50-60%. Hence, based on our estimates, the FSA/MOU obligations of CIL should be 347m tonnes for FY11 and 375m tonnes for FY12. We believe the company will be able to meet these obligations.

CIL: FSA/MOU obligations for FY11-12

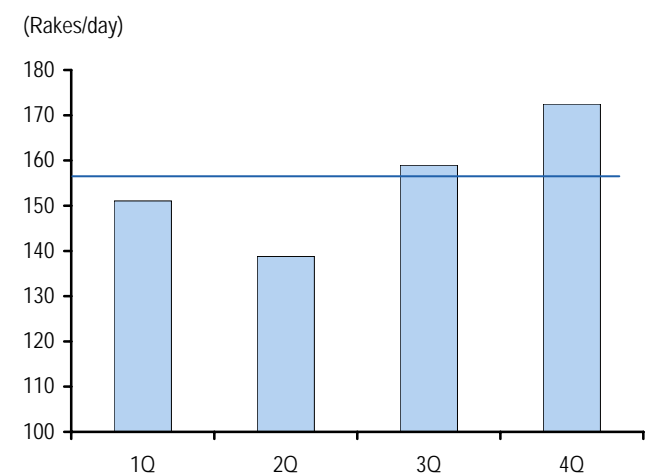
Sector	FSA/MOU	Penalty threshold	FY11 targets (m tonnes)	Actual FY11 delivery (m tonnes)^	FY12 targets (m tonnes)	Actual FY12 delivery (m tonnes)^
Power	FSA	90%	306	275	306	275
Power	MOU	Best effort	23	14	77	39
Non-power	FSA	60%	68	41	68	41
Non-power	MOU	50%	34	17	49	17
Total (A)			430	347	499	371
E-auctions plus washed coal (B)				82		75
Coal production (C)				433		446
Opening Stock (D)				63		68
Closing Stock (C+D-A-B)				68		68

Source: Company, Daiwa forecasts

Note: *Targets based on 100% requirement, ^power MOU delivery assumed at 60% for FY11 and 50% for FY12

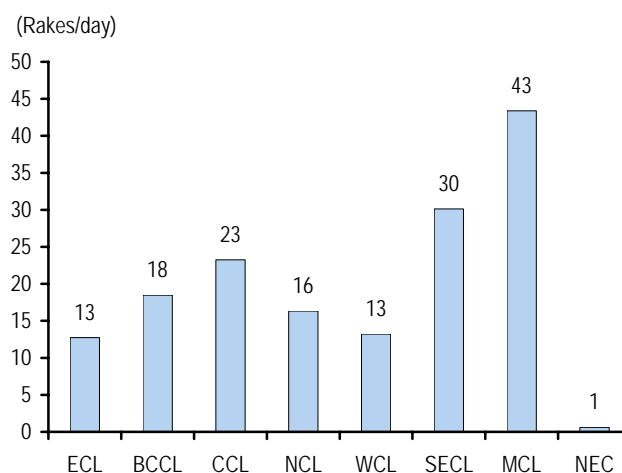
Rake availability is a structural issue***Inadequate rail-wagon supply is a threat to dispatches***

According to the previous dispatch estimates of the company, CIL's requirement would be 185 rakes/day in FY11 and 194 rakes/day in FY12. However, based on our dispatch forecasts of 429m tonnes for FY11 and 446m tonnes for FY12, the company would require 163 rakes/day in FY11 and 170 rakes/day in FY12. As at the end of December 2010 (the first nine months of FY11), the rakes loaded had been 158/day. At its company's analyst meeting, the management said that although the availability of rakes had improved following its rail-coal interface meetings in FY11, it remained the single biggest hurdle to efficient dispatches. The two following charts show the availability of rakes per day on a quarterly basis (first chart), and the availability of rakes for each of CIL's eight subsidiaries for the first nine months of FY11 (second chart).

Quarterly rail-wagon loading (FY10)

Source: Company, Daiwa forecasts

Note: 1 rake= 59 wagons

Rakes/day at CIL's eight subsidiaries (Apr-Dec 2010)

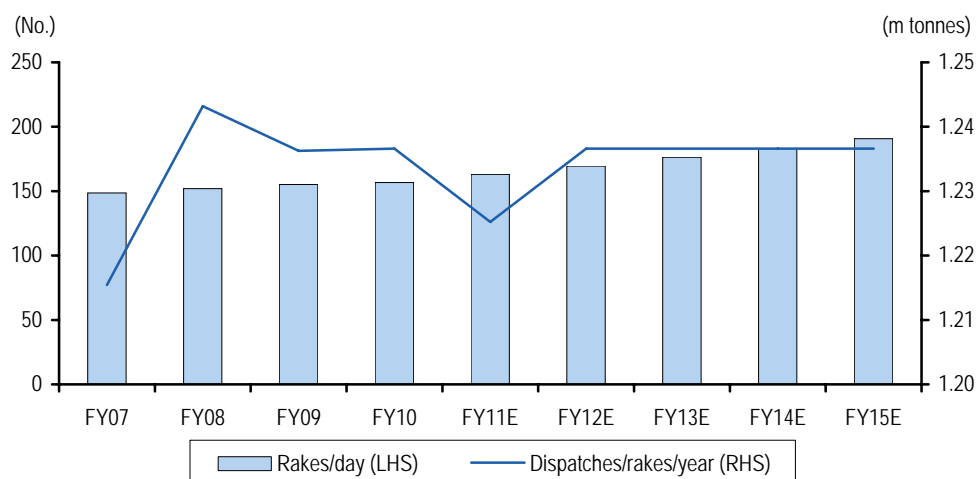
Source: Company, Daiwa forecasts

We assume a 4% YoY growth in rail wagon availability***Our assumption of an incremental supply of seven rakes/day from FY13 onwards is lower than CIL's requirement of 10-12 rakes/day***

We have assumed a 4% YoY increase in rake availability from FY12 onwards. The increase in rail loading from FY03-10 was 2.6% YoY, and an even lower 1.8% YoY from FY07-10. With the proposed expansion of Indian Railways adding 14,000 wagons in FY12, we believe the availability of rakes should improve. As a result we have assumed an incremental supply of seven rakes/day from FY12 compared with the company's requirement of 10-12 rakes/day.

We estimate an incremental availability of 7 rakes/day for FY13 onwards

Rakes per day and Dispatches per rake per year



Source: Company, Daiwa forecasts

Railway-line infrastructure is another bottleneck

Inadequate railway lines also a bottleneck

Even with the railway wagons being available, evacuation would not be possible with inadequate railway sidings and rail lines to transport the coal from the mine to the end user. Part of the issue is within the control of the company, with the construction of mechanised loading facilities and adequate railway sidings. However, it will have to rely on Indian Railways for the expansion of railway lines. As CIL ramps up its production from new mines, we believe that the availability of railway lines will be a major infrastructural bottleneck.

Indian Railways plans to add 1,000km a year of new line over next five years

Indian Railways added about 200km of new lines a year over the past five years, and plans to increase this to about 1,000km a year over the next five years.

Indian Railways: infrastructure additions

	FY05	FY06	FY07	FY08	FY09	Target FY11-12	Target FY13-20
New lines	150	180	250	156	357	1000	3400
Gauge conversion	779	744	1082	1549	563	2500	1350
Doubling	282	231	386	426	363	1000	1571

Source: Indian Railways

Critical railway projects for CIL

Four major rail-line projects have been identified by CIL for future dispatch growth

CIL has identified four major railway projects that would aid its future expansion plans.

- *Tori-Shivpur-Hazaribagh* broad-gauge line in the *North Karanpura* coal fields, 93km. The MOEF did not grant environmental approval to this line due to heavy forest cover. However, we believe the project will be reviewed; it would also support captive mines allotted to NTPC (NATP IN, Rs174.25, 3) and other private companies.
- *Gopalpur-Manoharpur, Ib Valley* coal field, 43km.
- Railway line connecting several blocks in the Mand Raigad area, 63km.
- Rail-line expansion project in Talcher, 12.5km.

Regulatory hurdles are being sorted out slowly but surely

Sector in a state of flux as far as regulations and policies are concerned

We believe that the India Coal Sector is in a similar state of flux to the Power sector just before the *Electricity Act 2003* was introduced. We expect policies to be updated with regard to the laws that govern the mine-allocation process and also the process of mine development through the *MMDR 2011*. The introduction of a coal regulator (*Coal Regulatory Bill*) would help streamline processes in the sector, in our opinion.

The biggest bottleneck for timely commissioning of mining projects has been securing environmental and forest approvals. However, recently a few large projects have received approval, and we believe that the pace at which approvals have been provided has picked up.

We also believe that policies, such as the classification of no-go areas, are a step in the right direction, as they have reduced the time necessary to receive forest approvals.

Coal mine development: timeline for approval procedures

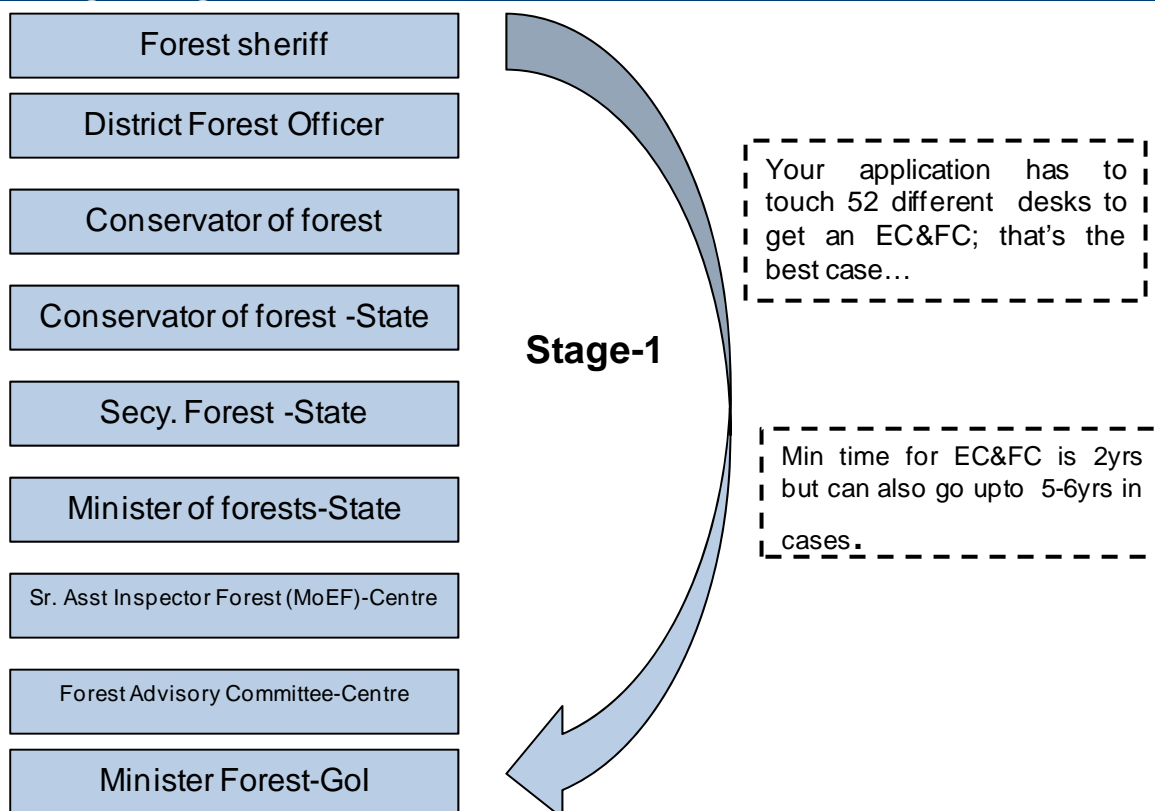
Approvals/procedures	Timeline	Remarks
Geological report	2-3 years	Prepared by CMPDIL (a CIL subsidiary) to estimate the proven reserves, the backbone when preparing a mining plan.
Mining plan	6 months	Prepared by recognised, qualified people in collaboration with the applicant.
Technical-committee approval	2-3 months	A group of experts from a number of agencies approve the mining plan.
Notification to the allotted company	n.a.	The applicant is allocated the mine.
Environmental & forestry approvals	2-6 yrs	MOEF.
Land acquisition and mining leases	2-6 yrs	Runs concurrently with the forest and environmental approvals.
Production	6 mths-1yr	

Source: Daiwa

Reduced timeline for environmental and forest approvals

Securing environmental and forest approvals are the biggest bottlenecks for mine development in India. From an analysis of the captive mines that are currently in operation, we gather that on average these mines have taken 9-10 years to move into production from the date of allotment. The average time taken for environmental and forest approvals has been about 5-6 years. This is in contrast to mines elsewhere in the world taking an average of 5-6 years to become operational.

Process to get a Stage-1 Forest clearance



Source: Industry

MOEF targets EC in 210 days and FC in 360 days

We believe MOEF's target of granting EC&FC within a year of application is aggressive. However, we believe even if 2-3 years are taken for according these clearances the timelines for mine development could reduce substantially. We also believe that MOEF would use a more rational approach going forward as any further delay in clearances would have a direct impact on the growth of the power sector.

Timelines for environmental clearances

Screening/Scoping of TOR	60 days
Public-Consultation	45 days
Appraisal by EAC/SEAC	60 days
Acceptance/rejection	45 days
Total	210 days

Source: MOEF

A coal regulator would streamline the process

Currently the mine development process involves interaction of various state level and central government agencies and multiple ministries, thus making the process lengthy and partly redundant. However, with the new Coal Regulatory Bill 2008 likely to be discussed in the Parliament in the next session, we believe certain process would be streamlined in order to reduce the time for a mine to be approved and developed. The coal regulator would be the nodal agency under the Ministry of Coal and would be involved in setting up an inter ministerial committee which would have representatives from all relevant ministries and would be in a position to take decisions faster.

Approvals for recent big ticket projects show tides of change

Over the past few months we have witnessed several large projects have been cleared by the MoEF albeit with conditions. Certain large projects that were given MoEF clearances are:

- NPCIL 6x1650MW nuclear power project at Jaitapur, Maharashtra
- POSCO's 12MTPA Steel plant at Orissa
- 2nd Mumbai International Airport at Panvel

Other projects such as that of HCC Lavasa are awaiting clearances. One may argue that the projects cleared are not in the same industry and are of national importance and thus were cleared. However, as over the next two years we expect ~28GW of linkage based power capacity to be added, and with CIL's production to remain flat for the period, we believe this would be a cause of concern. Hence ensuring faster clearances would be the only remedy.

16 coal blocks cleared from CEPI

In February MoEF cleared 16 coal blocks of CIL from CEPI regulations by increasing the threshold limit from >70 to >75. This implies that the company can begin the process of applying for necessary approval/clearances if they are new mines. As overburden (OB) does come under the purview of CEPI, the company has continued with the removal of OB in blocks where it has received all approvals but was not allowed to start production due to CEPI.

Key assumptions

Increase in dispatch by 4%

We have assumed the CIL's dispatch to increase by 4% per annum based on increase in the rakes availability by 4% (increase of 6-8 rakes) as ~47% of offtake is dependent on railways. Our assumption of 4% increase in rakes availability is lower than the management's guidance of an increase by 7% and is above the increase of 2.6% over the past five years.

Profitability will be maintained, increase in market linked sales kick in...

We believe CIL's recent increase in ASPs will help mitigate wage costs and fuel costs only, and be broadly margin neutral, but revenue will go up by Rs66bn in FY12.

Going forward we have assumed blended ASP's to increase in line with cost increases and our assumptions do not factor in improvement in profitability till the proportion of market linked sales increase meaningfully ie, beyond FY14.

CIL: key assumptions		FY09	FY10	FY11E	FY12E	FY13E
Production	m tonnes	404	431	433	446	464
YoY change (%)	%	6.4	6.8	0.5	3.0	4.0
Dispatch	m tonnes	401	415	429	446	464
YoY	%	6.9	3.5	3.3	4.0	4.0
Railway dispatches	m tonnes	192	194	202	210	218
Railway dispatches	as a % of total dispatches	48	47	47	47	47
Rail wagons required	Unit	155	157	163	170	176
Raw coal	m tonnes	326	350	374	395	407
E-auction	m tonnes	49	46	49	54	51
Washed coal	m tonnes	15	15	15	15	15
Raw coal	As a % of total dispatches	81	84	87	89	88
E-auction	As a % of total dispatches	12	11	12	12	11
Washed coal	As a % of total dispatches	4	4	4	3	3
Raw coal	% YoY	7	7	7	5	3
E-auction	% YoY	70	(6)	8	9	(5)
Washed coal	% YoY	5	(2)	5	0	0
Blended ASP	Rs	966	1,074	1,151	1,263	1,329
YoY	%	11.1	11.2	7.2	9.7	5.2
Raw coal ASP	Rs	843	976	1,034	1,138	1,206
YoY	%	6.4	15.8	6.0	10.0	6.0
E-auction coal ASP	Rs	1,481	1,583	1,759	1,934	2,050
Premium	% raw coal	76	62	70	70	70
Washed coal ASP	Rs	2,260	2,136	2,264	2,309	2,448
Premium	% raw coal	168	119	119	103	103

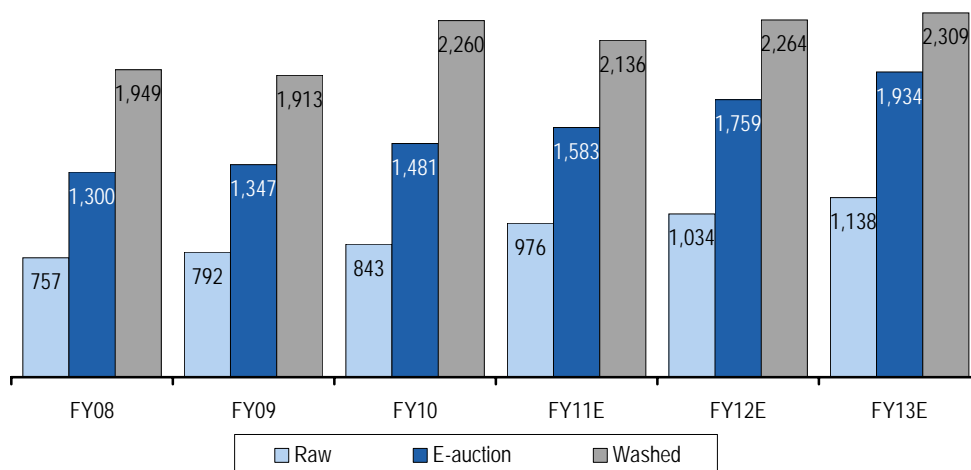
Source: Company, Daiwa forecasts

Recent price hikes will push up CIL's FY12 blended ASP by 10%

CIL has increased its prices in order to: 1) bring the prices of grade A & B coal in line with the price of coal imports, adjusted for GCV with a 15% discount, and 2) bring the price of MCL coal in line with SECL coal prices. It has also increased all other non-power sector coal prices by 30%. As such, we forecast CIL's FY12 blended ASP to rise by 10%.

With these price changes, the company has introduced differential pricing for different sectors, and this should not have an adverse affect on the regulated sectors such as power, fertiliser and defence, in our view. At the same time, we believe CIL's profitability in FY12 is likely to be maintained, as the buyers from non-regulated sectors were making market returns of subsidised coal from CIL.

CIL: ASPs for different coal categories (Rs/tonne)

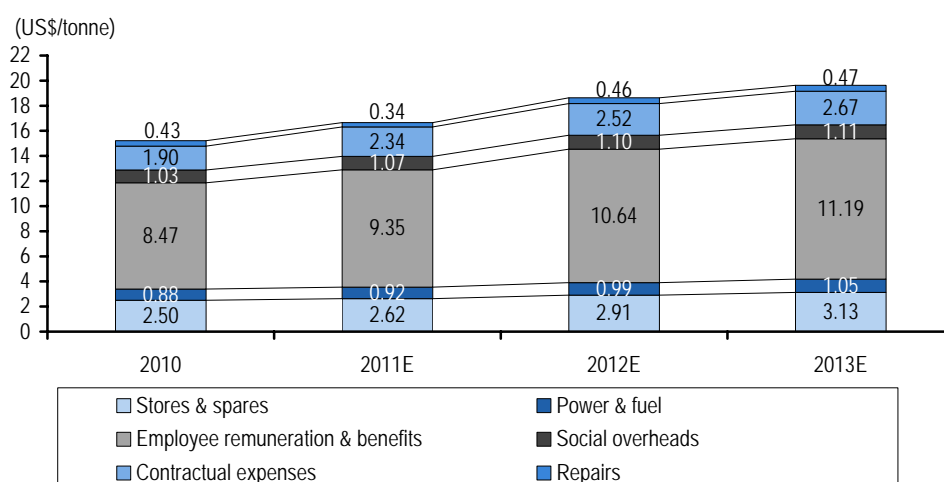


Source: Company, Daiwa forecasts

We forecast the FY10-13 average cash cost to rise by 8.7%

For FY05-10, CIL's average cash cost of production was low, at US\$15.7/tonne, as 90% of its output comes from open-cast mines and a low average strip ratio for these mines. However, given the higher inflation environment in India and increases in subcontracting, power, and fuel costs, we expect FY12 overall cash mining costs to increase at a rate that is slightly higher than the normal rate of inflation. As we believe it will take time for employee rationalisation costs and improved technology efficiencies to be reflected in production costs, we forecast the average cash cost of production to increase at a CAGR of 8.7% from FY10-13. However, in light of the recent ASP rise, we believe CIL's ability to pass on costs has also increased.

CIL: cash coal mining costs (US\$/tonne)



Source: Company, Daiwa forecasts

CIL's average cash cost of production was low, at US\$14.5/tonne, for the FY05-10 period

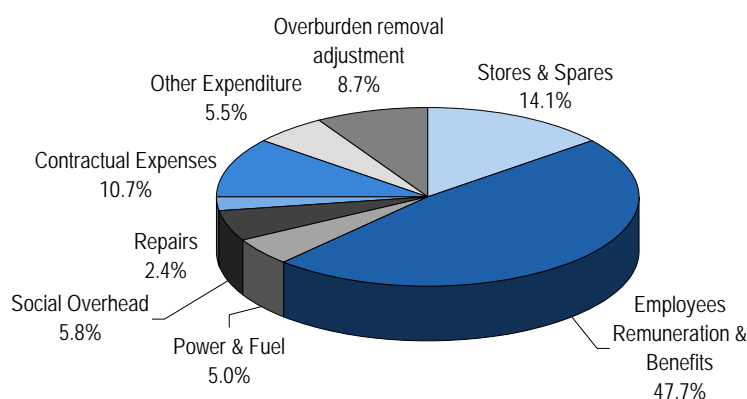
This was due to the following: 1) 90% of its output came from open-cast mines, and 2) these mines had a low average strip ratio

We forecast the average cash cost of production to increase at a CAGR of 8.7% from FY10-13

CIL: breakdown of operating costs (FY10)

Employee costs account for the largest part of operating expenses, equivalent to 48% of total annual operating costs

Consumption of stores and spares (equivalent to 14% of total annual costs) has a direct correlation to the cost of production, while contractual expenses have been rising steadily. We forecast contractual expenses to increase at a CAGR of 14% for FY11-13



Source: Company, Daiwa estimates

Employee costs: 48% of total annual operational costs

Employee costs account for the largest part of CIL's annual operating costs, and on average, these costs have accounted for 48% of total annual operating costs for the past five years. CIL employs 397,138 staff, which it says falls by 12,000 per annum (ie, a decline of 3% a year due to natural attrition). We believe this will cushion any impact on the annual wage bill, which we expect to rise by 23% YoY in July 2011. However, we have built into our model a natural annual attrition rate of 1.5%, and a provision for a 24% hike in the wage bill (with 18% for FY12). We believe the major reason for the recent price hike is due to the increase in employee costs, with the dearness allowance (an inflation-index-linked allowance) increasing from 27.2% of total employee costs (for FY10) to 50% for the first nine months of FY11. We forecast an employee-cost CAGR of 10% for FY10-15.

Contractual expenses: 11% of FY10 operational costs

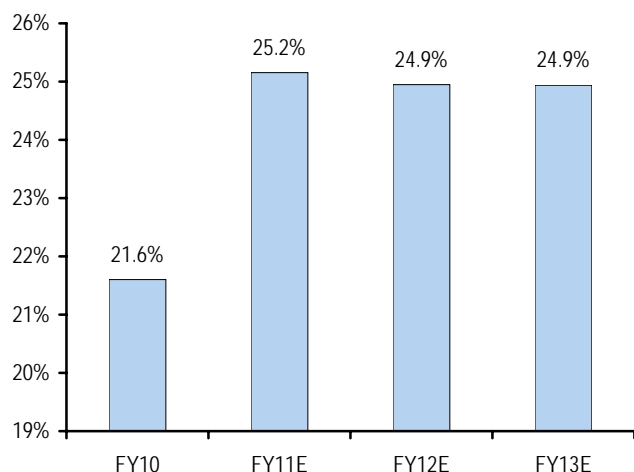
CIL uses third-party contractors for 41% of its total overburden removal operations and 48% of its total transport activities (moving coal from the pithead to loading points, transporting materials, loading coal onto wagons). Contractual expenses accounted for 11% of the total operating expenditure for FY10. We expect contractual expenses to continue to trend higher, as CIL increases the percentage of overburden removal (OBR) operations and transport activities conducted via third-party contractors, and forecast a contractual expense CAGR of 14% CAGR for FY10-15.

Overburden removal adjustment in the P&L

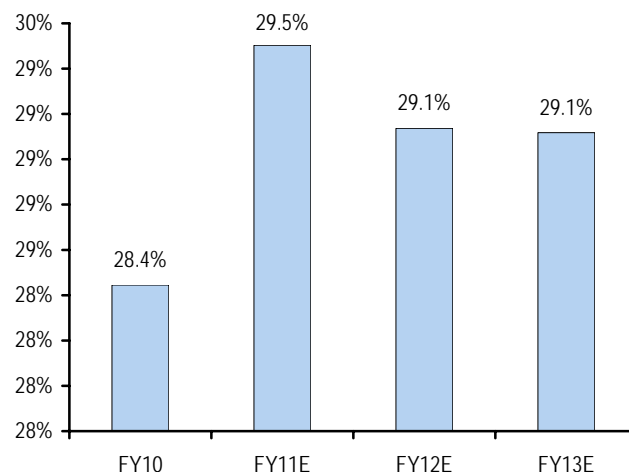
CIL, with its conservative accounting policies, provides for OBR expenditure based on an average strip ratio for each project. The expenditure incurred for the removal of excess/shortage of overburden in a particular year is adjusted against the P&L account by creating/utilising reserves of coal/cash in the financial account. CIL has been over-expensing its overburden removal costs as its stripping ratio is lower than the industry standard.

Impact of OBR provision writeback on the EBITDA margin

For FY10, CIL provided for an OBR provision of Rs30.5bn. Under *IFRS* accounting standards, companies are not allowed to have a provision for overburden removal; however as and when the company changes its accounting method, we forecast the EBITDA margin to increase by more than 400bps for FY11-13.

CIL EBITDA margin: excluding OBR adjustment

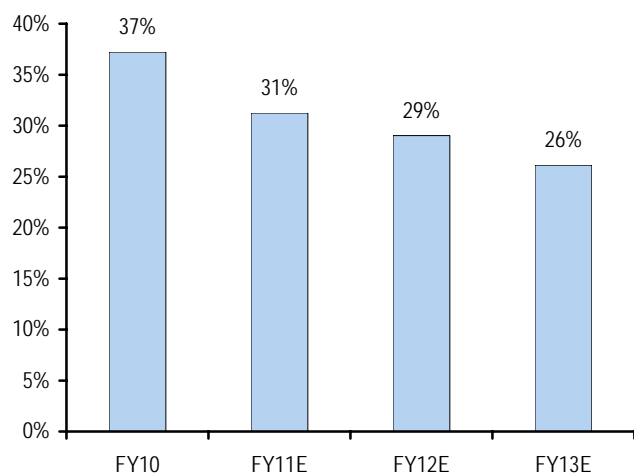
Source: Company, Daiwa forecasts

EBITDA margin: including OBR adjustment

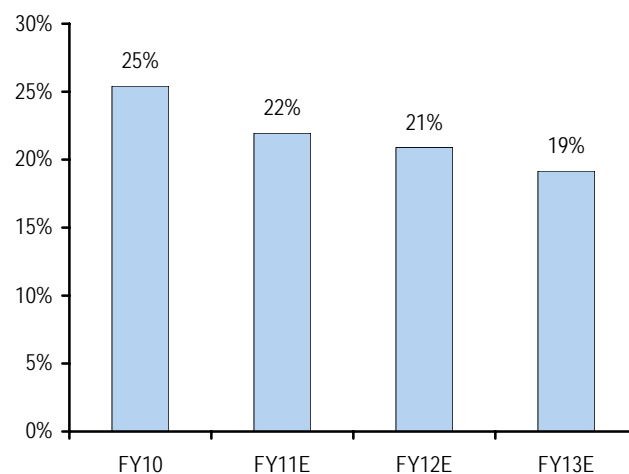
Source: Company, Daiwa forecasts

Impact of the OBR provision writeback on the ROE

CIL has allowed for an overburden removal provision of Rs120bn as of FY10. Such a provision is denied under *IFRS* accounting standards; however, as and when the company changes its accounting method, any balance under this provision would be transferred to CIL's general reserves, thus increasing its net worth, but decreasing its ROE.

CIL ROE: excluding OBR provision

Source: Company, Daiwa forecasts

CIL ROE: including OBR provision

Source: Company, Daiwa forecasts

Summary: profit and loss statement (Rs bn)

	FY08	FY09	FY10	FY11E	FY12E	FY13E
Net sales	326.34	387.89	446.15	496.91	563.17	616.35
Consumption of stores & spares	43.79	48.61	49.27	51.51	58.39	65.28
Employees cost	126.35	197.42	166.56	183.74	213.57	233.50
Power & fuel	15.94	15.95	17.40	18.09	19.96	22.02
Social overhead	16.23	18.85	20.17	21.04	22.10	23.21
Repairs	7.10	7.86	8.48	6.74	9.24	9.76
Contractual expenses	26.33	33.40	37.32	45.94	50.64	55.83
Other expenditure	14.87	19.29	19.34	20.96	22.89	25.00
Overburden removal adjustment	15.64	21.77	30.54	21.61	23.60	25.77
EBITDA	59.95	24.10	102.28	124.99	140.49	153.70
% margin	17	6	22	25	25	25
-- Rs per tonne	159.72	60.03	246.25	291.45	314.99	331.34
-- US\$ per tonne	3.55	1.33	5.47	6.48	7.00	7.36
Depreciation	15.30	16.63	13.14	17.47	18.47	20.47
PBT (operating)	43.15	5.90	87.78	106.07	120.79	132.22
Other Income	37.64	51.20	52.40	48.32	61.13	70.06
PBT (reported)	87.18	57.41	139.65	153.86	181.39	201.74
Total tax	34.75	36.63	43.42	49.23	58.04	64.56
% tax rate	39.9	63.8	31.1	32.0	32.0	32.0
Net profit	52.43	20.77	96.22	104.62	123.34	137.19
% change YoY	(8.2)	(60.4)	363.2	8.73	17.90	11.22
EPS (Rs)	8.30	3.29	15.23	16.56	19.53	21.72

Source: Company, Daiwa forecasts

Summary: balance sheet

	FY08	FY09	FY10	FY11E	FY12E	FY13E
Shareholders fund	172.01	190.08	258.49	334.90	424.94	525.08
Shifting and rehabilitation fund	9.46	12.24	14.77	14.77	14.77	14.77
Total loan	18.84	21.48	20.87	17.87	14.87	11.87
Minority interest	-	0.02	0.24	0.24	0.24	0.24
Total liabilities	202.11	223.82	294.37	367.77	454.82	551.96
Gross fixed assets	318.59	332.55	349.45	369.45	409.45	449.45
Less: depreciation	210.09	218.03	224.91	242.38	260.86	281.33
Less: provision for impairment	4.11	4.43	4.23	4.23	4.23	4.23
Net block	104.39	110.09	120.31	122.84	144.36	163.89
Capital work-in-progress	15.39	18.22	21.08	39.08	45.58	45.58
Surveyed-off assets	0.29	0.97	1.20	1.20	1.20	1.20
Investments	17.18	15.05	12.82	12.82	12.82	12.82
Deferred tax assets	7.88	9.55	9.66	9.66	9.66	9.66
Current assets, loans & advances						
Inventories	34.07	36.67	44.01	49.69	56.32	61.64
Sundry accounts receivable	16.57	18.47	21.69	24.85	28.16	30.82
Cash & bank balances	209.61	296.95	390.78	405.68	494.51	596.06
Loans & advances	102.66	117.27	86.65	124.23	140.79	154.09
Less: current liabilities & provisions	305.94	399.42	413.85	422.38	478.70	523.90
<i>OBR adjustment account</i>	68.02	89.79	120.14	141.75	165.35	191.12
Net WIP	(152.64)	(227.01)	(261.49)	(223.61)	(253.43)	(277.36)
Net current assets	56.98	69.94	129.29	182.07	241.08	318.70
Total assets	202.11	223.82	294.37	367.66	454.71	551.85

Source: Company, Daiwa forecasts

Daiwa earnings forecasts lower than those of the consensus

Our earnings forecast for FY12 is 5.5% lower than that of the Bloomberg consensus, while our FY13 forecast is 9.3% lower, as we have lower dispatch assumptions and higher cost assumptions than the consensus. Our lower dispatch assumption stems largely from the fact that the availability of wagons to transport coal has increased by an average of only 2.5% over the past five years. Our cost assumptions appear to be more conservative than those of the consensus, and are in line with the company's cost levels over the past few years, as we believe it will take time for the company's employee rationalisation programme and its improved technology efficiencies to be reflected in costs.

We have assumed that the recent ASP increase will help mitigate any wage-price and fuel-price inflationary pressure, and that it won't aid improvement in the company's profitability in FY12.

CIL: Daiwa's earnings forecasts vs. those of the consensus

	FY11E			FY12E			FY13E		
	Daiwa	Consensus	Difference (%)	Daiwa	Consensus	Difference (%)	Daiwa	Consensus	Difference (%)
Sales (Rs bn)	497	512	(2.9)	563	579	(2.8)	616	641	(3.8)
EBITDA margin (%)	25.2	27.3	(2.1)pp	24.9	28.2	(3.2)pp	24.9	29.4	(4.4)pp
EPS	16.6	17.2	(3.5)	19.5	20.7	(5.5)	21.7	24.0	(9.3)

Source: Bloomberg, Daiwa forecasts

Sensitivity analysis

We estimate that a 1% change in the offtake volume would result in our raising/lowering our six-month target price by 10.1%/9.6%, and that FY12-13 earnings would be affected by 2% and 3.9%, respectively.

CIL: sensitivity analysis (Rs bn)

	Target price	FY12E			FY13E		
		Net sales	EBITDA	PAT	Net sales	EBITDA	PAT
Base case	375	563.2	140.5	123.3	616.4	153.7	137.2
Offtake volume							
Increase by 1%	10.1	0.9	2.3	2.0	1.9	4.6	3.9
Decrease by 1%	(9.6)	(0.9)	(2.3)	(2.0)	(1.9)	(4.6)	(3.9)
Volume mix of e-auction coal							
Increase by 1%	2.1	0.6	2.5	2.1	0.6	2.5	2.1
Decrease by 1%	(2.1)	(0.6)	(2.5)	(2.1)	(0.6)	(2.5)	(2.1)
Increase in ASP							
Increase by 1%	2.4	0.8	3.4	2.8	0.9	3.4	2.8
Decrease by 1%	(2.4)	(0.8)	(3.4)	(2.8)	(0.9)	(3.4)	(2.8)

Source: Daiwa estimates

Key risks

We believe the India coal sector has been plagued by three primary structural challenges that have stymied its production-growth prospects.

- Lengthy approval procedures for environmental and forest clearance,
- Delays in land acquisitions, and/or
- Inadequate evacuation and railway infrastructure.

Regulatory issues can be resolved, infrastructure bottlenecks will take longer

We believe we will see changes in regulations and policies regarding the coal sector over the next few years, and that issues relating to lengthy approval procedures will also be sorted out over time. The *MMDR Bill 2011*, new coal-block allocation policy, and the coal regulatory bill should partly address these issues, in our view. Other infrastructure bottlenecks, such as the availability of railway wagons, are likely to take longer to resolve, as new rail-wagon factories have been planned but put on hold over the past two years.

Land acquisition is an obstacle that is likely to become more profound over time

We see land acquisition as a bigger risk to the timely development of coal mines than the company's ability to secure environmental and forestry approval. Land acquisition for coal mines is carried out under the *Coal Bearing Areas Act 1957*; however regulations stipulated in other laws, such as the *Land Acquisitions Act* and the *MMDR Bill 2011*, also play a role. The land-acquisition process runs concurrently with the environmental and forest approval process, which is equally time-consuming. However, land acquisition may not be as much of a problem for CIL as it is a public-sector company that can acquire land for public purposes. Other issues could arise, such as compensation for private land acquired, which has been a contentious issue in the past, and often takes time to finalise. Of late in the past few months, there have been instances where the compensation for rehabilitation and resettlement (R&R) has increased from Rs300,000/acre/family to Rs800,000/acre/family. We believe the number of land-acquisition delays is likely to increase as CIL plans to increase its production from new mine projects.

Two approval stages for converting forest land:

- **Stage I:** receive approval in principle to convert forest land by adhering to the rules and regulations of the *Coal Bearing Areas Act 1957*.
- **Stage II:** deforestation in phases according to a company's environmental-management plan.

Lengthy procedures to secure environment and forest approval

The average time taken for a coal mine in India to be ready to start production is substantially higher (8-9 years) than the global average (5-6 years). The primary reason for this is that it takes so long for a mine to secure environmental and forestry approval. The procedures followed to grant these approvals are lengthy, redundant, and do not take into account the actual situation on the ground. Although the MoEF mandates that an environmental approval should be granted within 200 days of application, and the forestry approval within 150 days of application, it usually takes 5-6 years for mine companies to secure such approval. From our discussions with industry experts, we gather that to get a Stage-1 environmental approval, 86 approvals are required, ranging from a village approval to approval by central government agencies.

We see the ability to ensure timely land acquisitions as a greater risk to future production growth than regulatory issues

Inadequate rail infrastructure is the biggest threat to dispatches

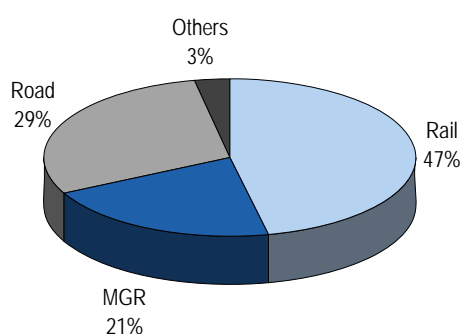
About 47% of CIL's FY10 dispatches were by rail and this remains the major source of dispatch. In the future, we believe that the company's dependence on railways will increase as the number of non-pithead customers is likely to increase, in our view.

Over the past few years, the increase in the availability of railway wagons has not kept pace with dispatch growth. Loaded wagons have increased by a CAGR of 3% for FY03-10, compared with total dispatch growth of 6% for the same period.

The lack of wagons has presented more of a problem over the past two years (FY09-10), as CIL's average wagon-loading/day increased from only 155 rakes/day for FY09 to 157 rakes/day for FY10. This has resulted in an increase in minehead coal inventory over the period. CIL's closing coal stock as at the end of FY10 was 63m tonnes compared with 33m tonnes as at the end of FY06.

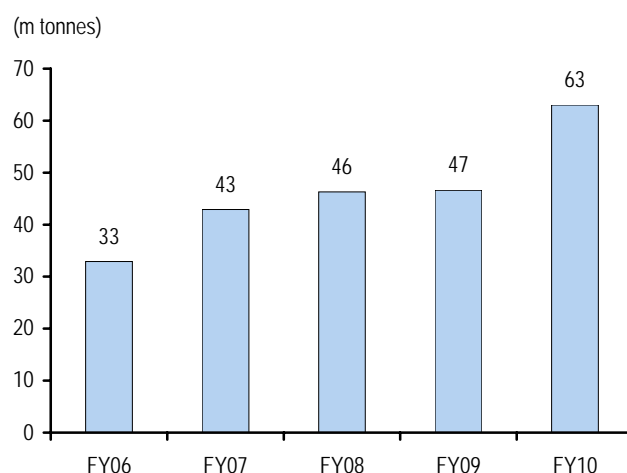
CIL's future plans also depends on the rail connectivity of three major areas, namely: *Tori-Shivpur-Hazaribagh* (North Karanpura) – 93km, *Gopalpur-Manoharpur* (Ib Valley) – 43km, and a railway track at Mand Raigarh – 63km. Should these rail-track expansions not be carried out by Indian Railways, CIL's ability to evacuate coal from coal fields in these areas would be hampered. We believe it is worth nothing that the MoEF recently turned down an application for forest approval for the *Tori-Shivpur-Hazaribagh* railway line because it has been deemed a no-go area.

CIL: coal evacuation



Source: Company

CIL: coal inventory



Source: Company

MOEF's no-go area classification

In FY10, the MOEF classified coal mines across nine coal fields into no-go areas depending on forest density. Coal mines that have a large proportion of their land area under forests have been classified as no-go areas and environmental and forest approvals for such mines will not be granted. Mines in which substantial investments have already been made, but have since been classified as being in no-go areas, will be given preference at the time that a new coal block allocation policy for alternate blocks is announced. However, the official list of blocks that have been classified as no-go areas has not been published by the MOEF, hence there is no clarity with the mine holders on this issue.

Profit sharing clause proposed by the MMDR Bill 2011

The new *MMDR Bill 2011* proposes introducing the concept of profit sharing. The ratio proposed is 26% of PAT towards social upliftment of the area in which the mine is located. CIL already undertakes substantial social works. For FY10, the company spent Rs20bn on social overheads, accounting for 4.3% of revenue and 21% of PAT. Hence, we believe that this may not have a material impact on the company.

Continued impact of CEPI regulation beyond FY12

The implementation of CEPI, which will have an impact on CIL's FY11-12 production, will be reviewed by the end of March 2011. Management estimates that if an industry-based approach is adopted to calculate the pollution index, then it may not impact its FY13 production. We have assumed that production will resume its long-term upward trend of 4% for FY13. If the CEPI regulation is implemented beyond FY12, we would see downward risks to our FY13 production forecast.

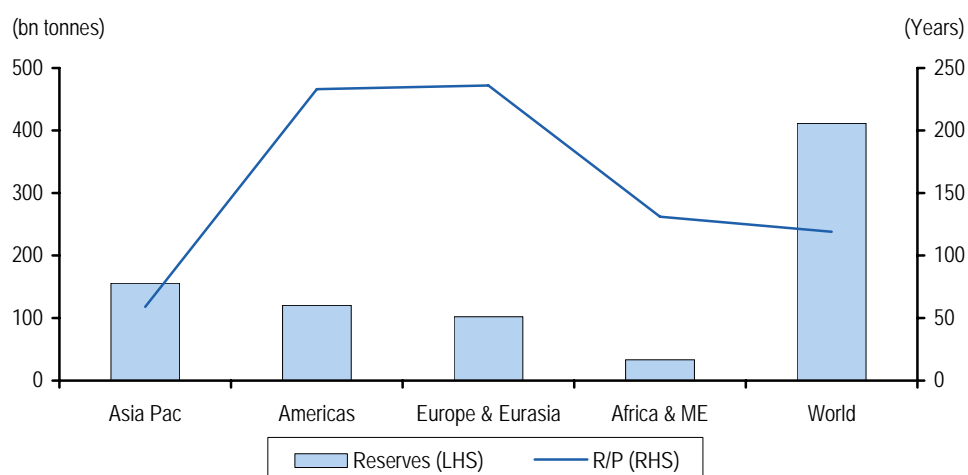
Appendix 1

Global coal scenario

Abundant global reserves of coal; India has the third-largest reserves

Based on the World Energy Council's estimates for 2009, the world has proven coal reserves of 411bn tonnes, which are sufficient to support the world's population for the next 119 years, based on the global current reserve-to-production ratio (R/P). Asia (156bn tonnes) and the Americas (120bn tonnes) are the two continents with the highest coal reserves, and R/Ps of 59 and 235 years, respectively.

Coal reserves: by continent (2009)

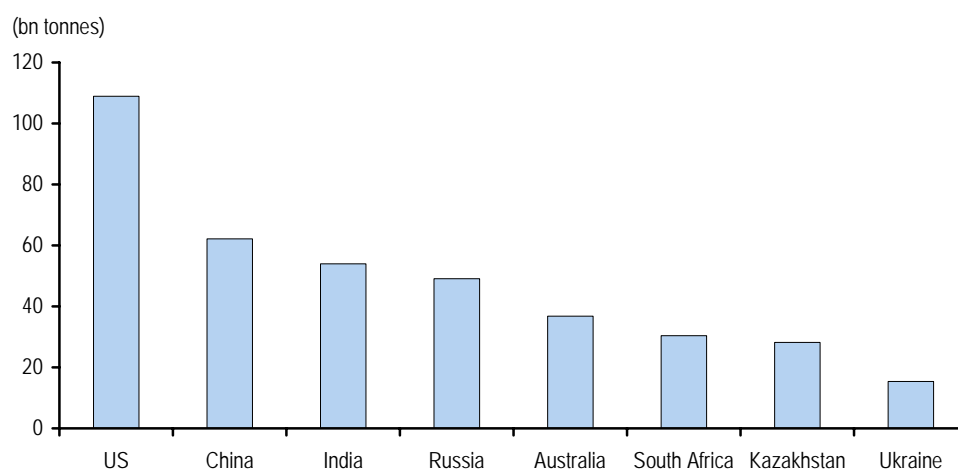


Source: World Energy Council

Note: R/P = reserve/production ratio denominated in years

The R/P ratio for Asia is low as China (40% of Asia's reserves) has only 38 years of reserves. In terms of countries, the US leads with 108bn tonnes, followed by China (62bn tonnes), and India (54bn tonnes).

Coal reserves: countries with the highest reserves (2009)



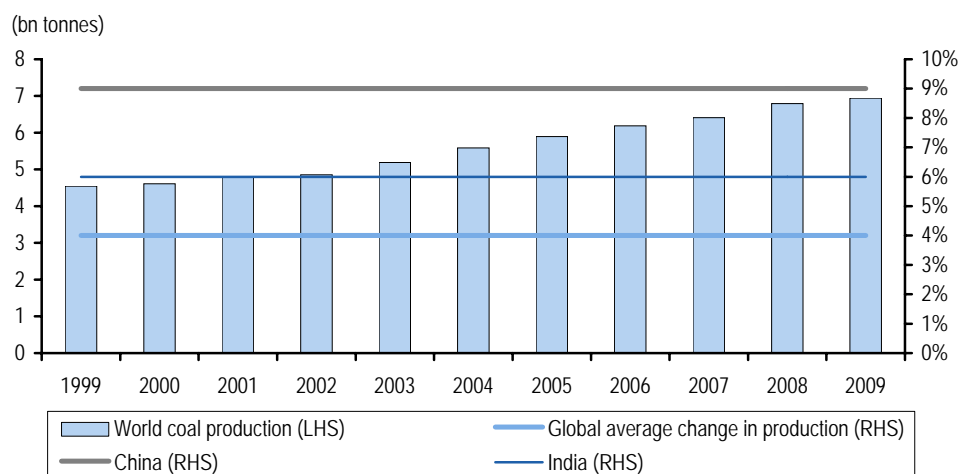
Source: World Energy Council

Global coal production expanded by a steady CAGR of 4% from 1999-2009

For 2009, global coal production was 6.9bn tonnes, and this has expanded at a steady pace (4% CAGR) over the past 10 years (1999-2009). However, China's and India's production growth rates have expanded faster than the global average, by 9% and 6%, respectively. Production growth in China and India has mainly

been driven by the expansion of these countries' power-generation capacities, which have increased by CAGRs of 11% and 5% for the same period, respectively.

Global coal production vs. China and India

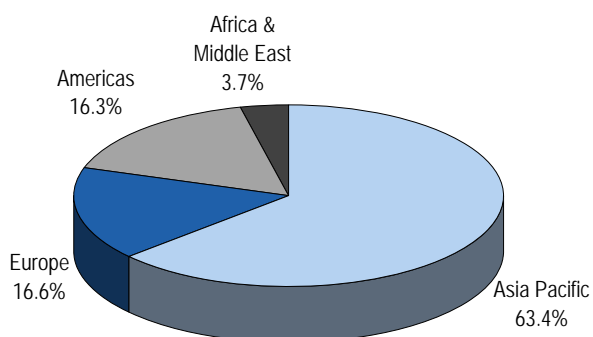


Source: BP Statistical Review 2010

2009: China accounted for 43% of global coal production; India 8%

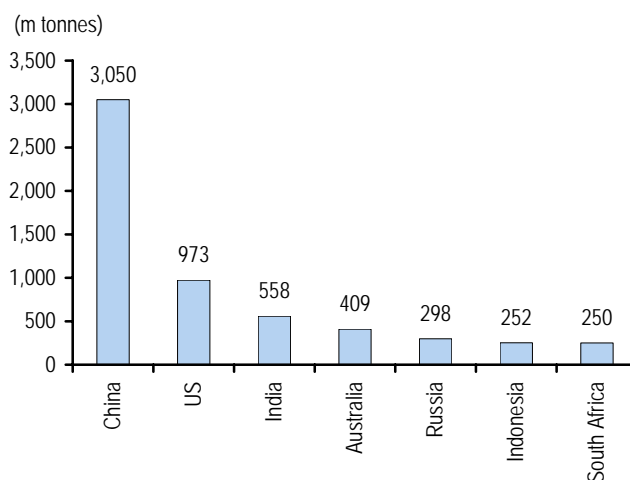
In 2009, out of the 6.94bn tonnes of global coal production, China produced 3bn tonnes (43%), followed by the US at 973m tonnes, and India with 558m tonnes. Thus, India accounted for 13% of 2009 global reserves and 8% of global production.

Global coal: production breakdown (2009)



Source: BP Statistical Review 2010

Global coal: breakdown by country



Source: BP Statistical Review 2010

However, as demand for coal (mostly thermal) continues to outstrip supply in India, we believe it is important to track the global seaborne trade of coal and the impact of India's demand for imported coal on coal prices.

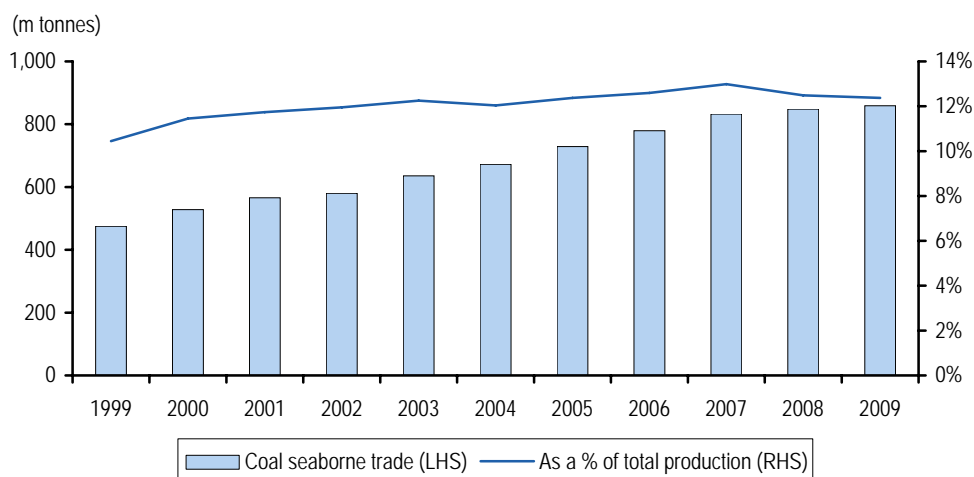
Global seaborne trade of coal has expanded by CAGR of 6% (1999-2009)

With the increasing consumption of coal by developing economies such as China and India, we believe that the global seaborne trade of coal is likely to see a surge in volumes. The global seaborne trade for coal in 2009 was 859m tonnes, and accounts for almost 91% of the total traded coal. However, seaborne trade expanded by a CAGR of 6% from 1999-2009, against production growth of a 4% CAGR (1999-2009).

About 12% of the total coal production globally is usually traded through this route, and there has not been much of a change in this ratio over the past 10 years. In the future, we estimate that as India's imports rise, total seaborne trade will increase to about 14% of total global production by 2015. Currently, Japan and China are the major importers of coal, compared with Australia and Indonesia, which are the largest exporters.

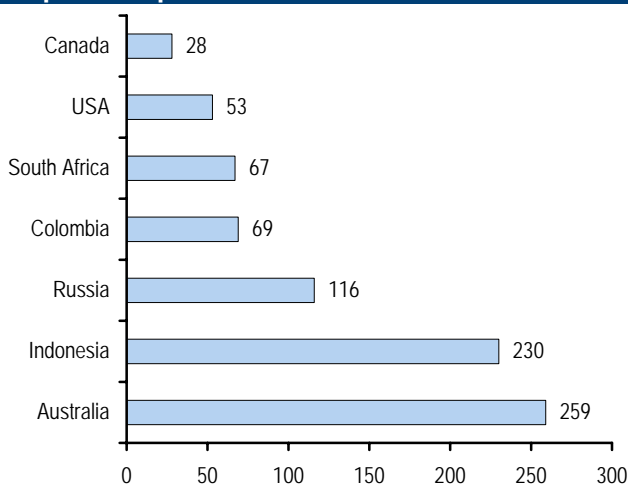
Global seaborne trade was 859m tonnes for 2009, accounting for 12% of total coal production

Global seaborne trade



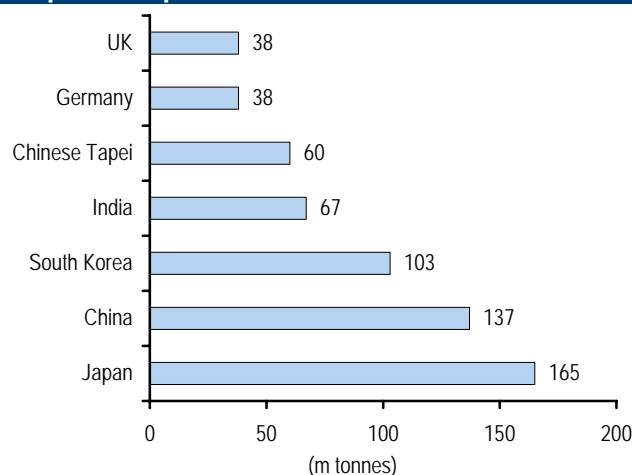
Source: IEA

Top coal exporters: 2009



Source: World Coal Association

Top coal importers: 2009

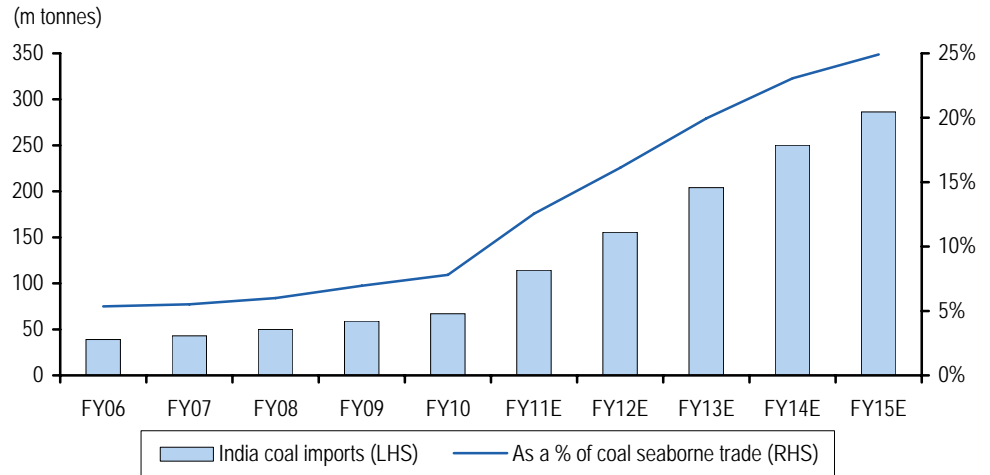


Source: World Coal Association

India's coal imports accounted for 8% of FY10 global seaborne trade; we forecast this to increase to 17% by FY15

India imported 67m tonnes of coal in FY10, which was about 8% of total global seaborne trade. However, based on our demand-supply model for India's coal scenario, we forecast the country will have to import 281m tonnes for FY15, led mainly by a deficit of 139m tonnes and 142m tonnes for apparent imports needed to meet the requirements of power plants and the steel industry, respectively.

India: coal imports and as a % of global coal seaborne trade

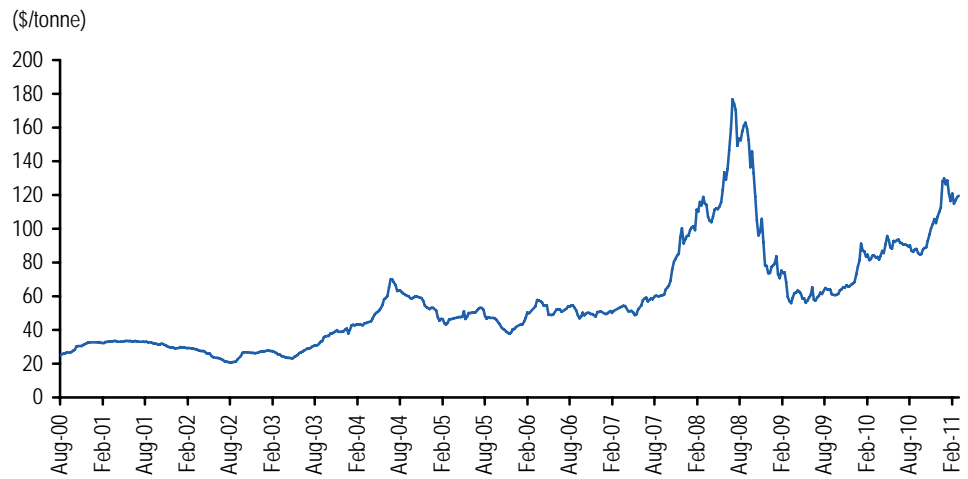


Source: World Coal Association, Daiwa forecasts

Global coal price trends

Thermal coal prices: Richards Bay Index (South Africa)

Coal prices have risen by about 36% to US\$120/tonne since October 2010 on account of the floods in Australia and demand from India and China, but prices are still lower than their 2008 peak of US\$177/tonne



Source: Bloomberg

Appendix 2

India's coal sector

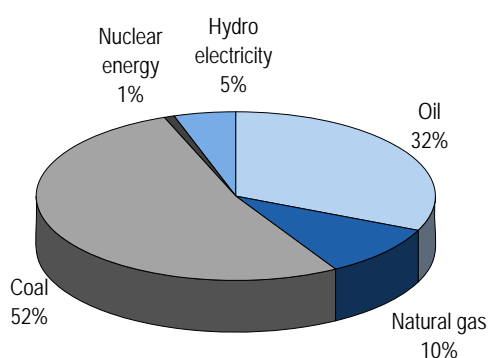
Coal accounts for 52% of India's primary energy requirements

Coal is a major source of energy in India and accounts for 52% of its total primary energy requirements, followed by oil (32%) and natural gas (10%).

110bn tonnes of proved coal reserves, one of the highest globally

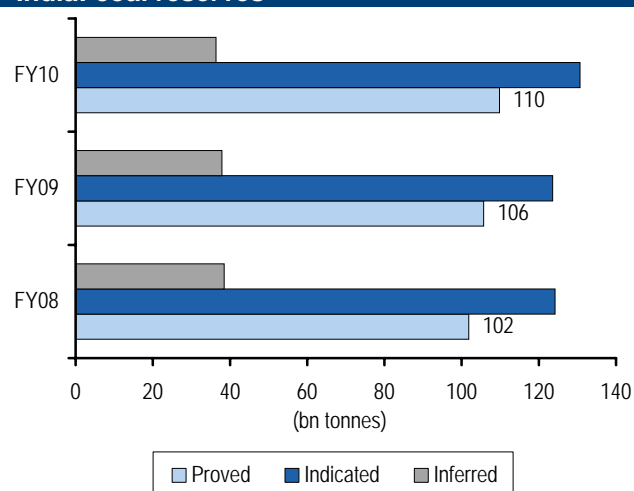
India has one of the highest proven reserves of coal. Based on the Indian Standard Procedure (ISP) guidelines, its proven coal reserves as at the end of FY10 were 110bn tonnes, with total reserves of 276bn tonnes. However, based on the estimates presented by the World Energy Council, India's recoverable reserves were 54bn tonnes in 2009, substantially lower than the proven reserves according to the ISP, but still the third-largest globally.

India: sources of primary energy (2009)



Source: BP Statistical Review 2010

India: coal reserves

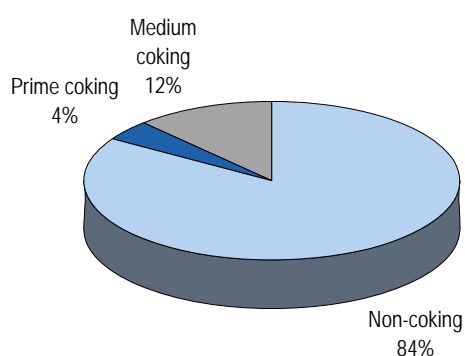


Source: Ministry of Coal
Note: reserves as per ISP standards

84% of reserves are non-coking coal, and about 80% of reserves are spread across four states

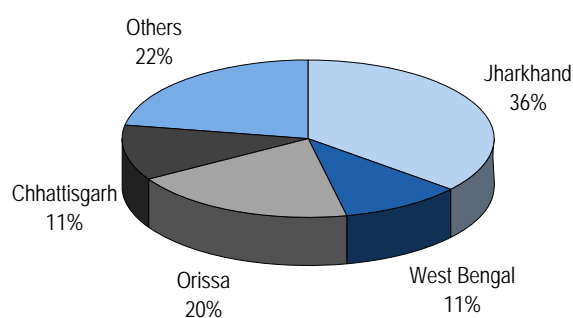
India has mainly reserves of non-coking (thermal) quality, with almost 84% of its proved reserves of this nature. Along with the skew in coal quality, the reserves are tightly located across just four major states: Jharkhand, West Bengal, Orissa, and Chhattisgarh. Together, these states account for about 80% of the country's reserves.

India: coal reserves by type (2009)



Source: Ministry of Coal

India: coal reserves by state (2009)

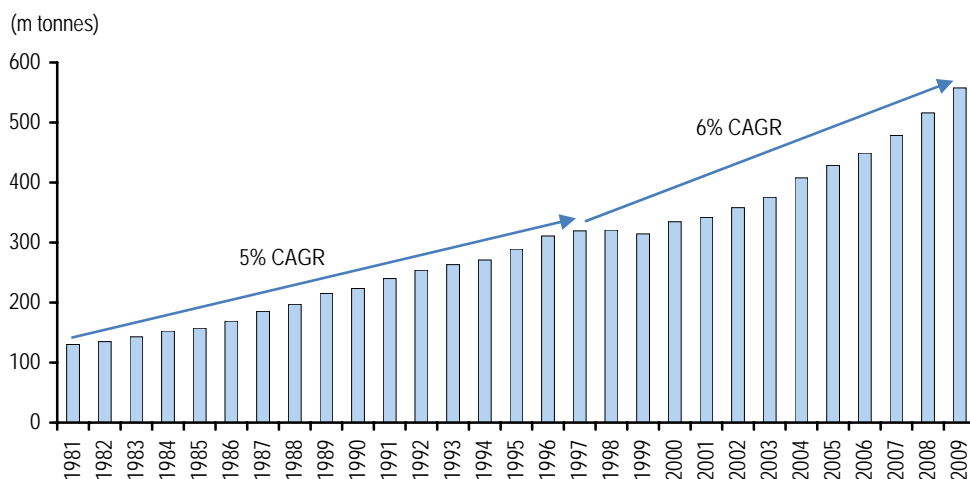


Source: Ministry of Coal
Note: Others include: AP, MP, and Maharashtra

India's production-growth CAGR of 6% (1999-2000) was above the global average

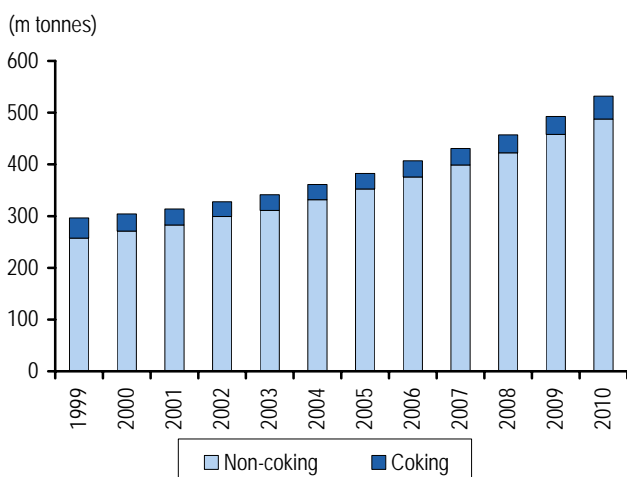
For FY10, India produced a total of 532m tonnes of coal, the third-highest globally. India's production has expanded by a CAGR of 6% over the past 10 years, which is higher than the global average growth rate of 4% over the past 10 years.

India: coal production



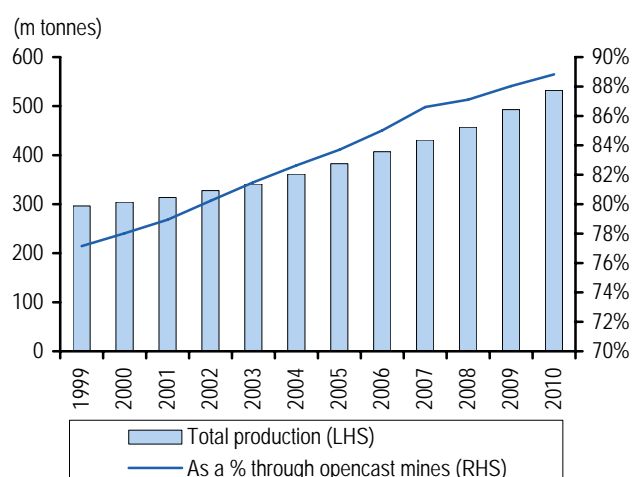
Source: BP Statistical Review 2010

India: coal output, non-coking vs. coking coal



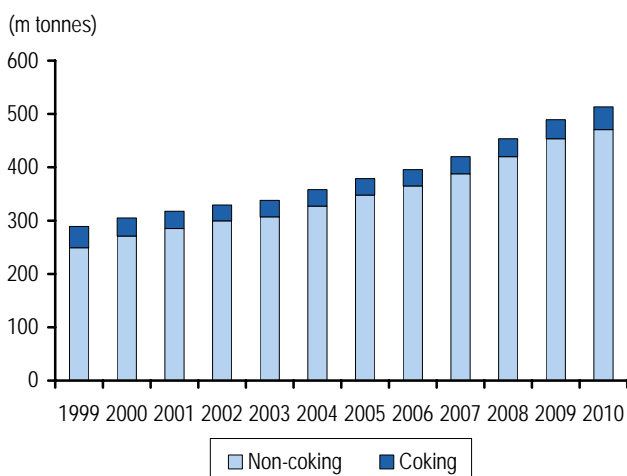
Source: Ministry of Coal

India: opencast mining vs. underground mining



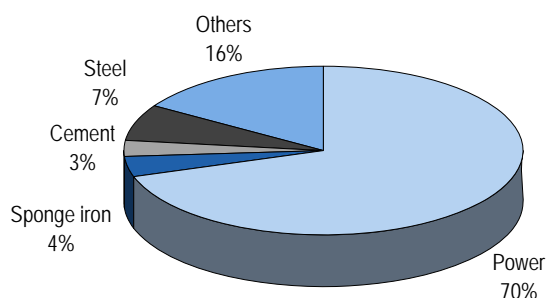
Source: Ministry of coal

India: dispatch/offtake trend



Source: Ministry of Coal

India: coal use by industry



Source: Ministry of Coal

Appendix 3

India coal demand-supply model

For FY10-15, we forecast a 12% CAGR for coal demand versus a 6% supply CAGR

We expect India's demand for coal to expand by a 12% CAGR from FY10-15. The main demand-growth driver is likely to be the power sector, for which we forecast an incremental thermal capacity addition of 77GW. For FY10-15, we forecast an incremental demand of coal for India of 463m tonnes.

However, we expect supply to lag demand, and we forecast a 6% supply CAGR for the period. Our supply forecasts have factored in imports of coal for power plants, and coking coal to increase domestic steel capacity.

India: coal demand-supply scenario FY10-15 (m tonnes)						
	2010	2011E	2012E	2013E	2014E	2015E
Coal demand forecasts						
Power (utility)	351	413	473	547	618	687
Power (captive)	35	44	47	50	54	58
Cement	15	16	17	18	19	20
Others (BRK + sponge iron, etc)	113	119	124	129	135	138
Power (import based)	20	21	29	38	48	56
Other imports	48	58	66	72	78	85
Total demand (A)	582	671	756	854	952	1,045
Coal production:						
Coal India	415	429	442	459	478	497
SCCL	49	51	53	55	58	60
Captive	35	39	45	49	57	77
Others	15	15	15	16	16	16
Apparent imports	68	79	95	110	126	142
Total production (B)	583	613	650	690	734	791
Gap DD:SS based on domestic quality (B-A)	1	(57)	(106)	(164)	(218)	(253)
Adjusting for imported quality (GCV 5000Kcal/Kg)	0	(33)	(61)	(94)	(124)	(145)
Total imports (apparent + forced)	67	112	155	204	250	286

Source: Daiwa forecasts

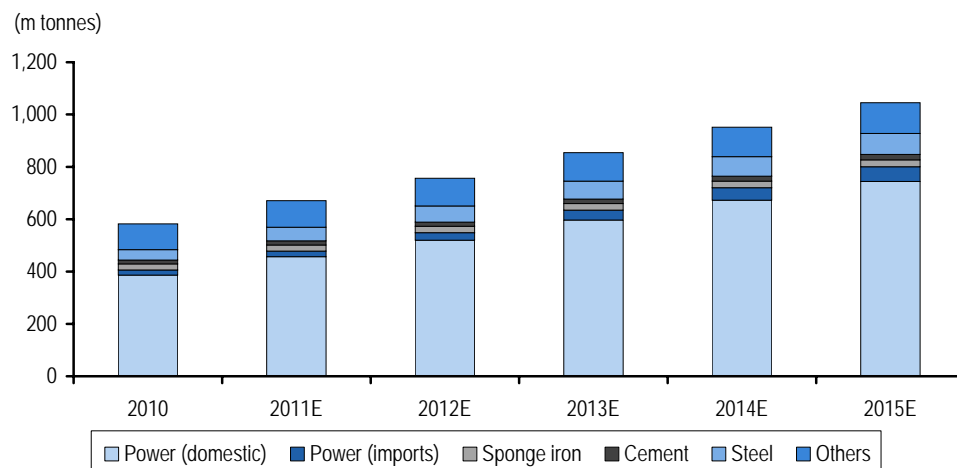
India's demand for coal will be driven by a power-capacity addition of 77GW, based on our forecasts

Power generation (utilities and captive) accounts for about 70% of the coal demand in India, and coal-based power capacities form about 54% of the country's power generation capacity of 167GW. Thus, we expect the power sector to continue to remain a major driver of coal demand. For FY10-15, we forecast an incremental thermal capacity addition of 77GW. Based on this forecast, the incremental coal requirement for the power sector would be 394m tonnes for the same period.

In addition, other sectors such as steel, cement and the sponge-iron producers are seeing an increase in their capacities, thus leading to an increase in the demand for coal.

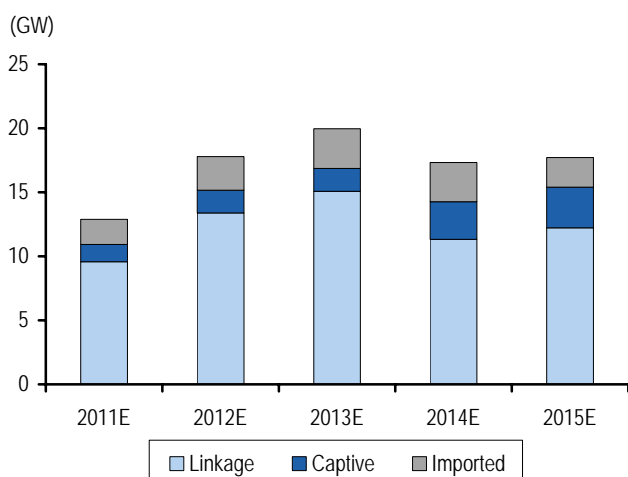
Our demand forecasts also build in the need for apparent imports, which would be required for power projects planned that use imported coal, as well as imports of coking coal for steel plants. Apparent coal imports accounted for 12% of demand for FY10 and we forecast this to account for about 14% by FY15, as we forecast 13GW of imported coal-based power capacity, and an 80% increase in steel capacities from FY10-15.

India coal: demand drivers



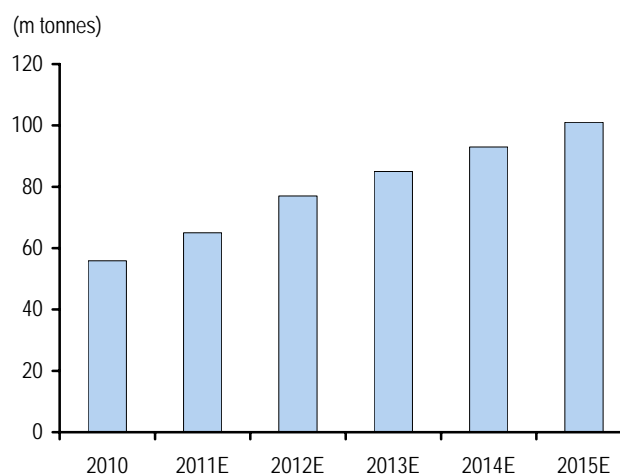
Source: Daiwa forecasts

India: coal-based power capacity additions



Source: Daiwa forecasts

India: steel capacity



Source: Daiwa forecasts

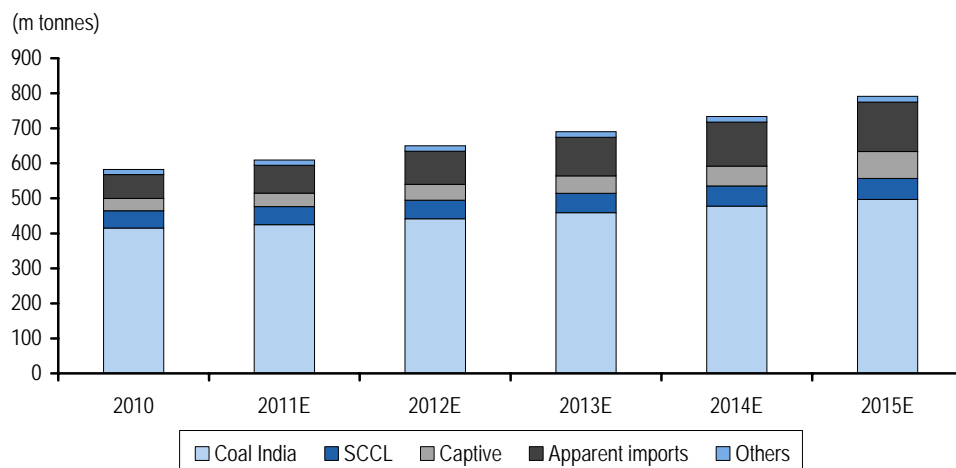
Supply growth CAGR of 6% would be supported by captive mining and apparent imports

We forecast the total supply of coal to increase from 583m tonnes for FY10 to 791m tonnes for FY15 (CAGR 6%).

Although we expect CIL to remain a major contributor (81% of domestic output, and 72% of total supply for FY10), we believe captive-mine production and apparent imports will expand faster than industry-supply growth.

We forecast CIL's dispatches to expand from 415m tonnes for FY10 to 507m tonnes for FY15 (a 4% CAGR). However, we forecast captive-mine production to increase from 35m tonnes for FY10 to 77m tonnes for FY15, as issues relating to environmental approvals and land acquisitions are addressed in the *Mining Bill 2011*. Apparent imports, which accounted for 12% of total FY10 supply, will account for 17% in FY15, based on our forecasts.

India coal: supply projections

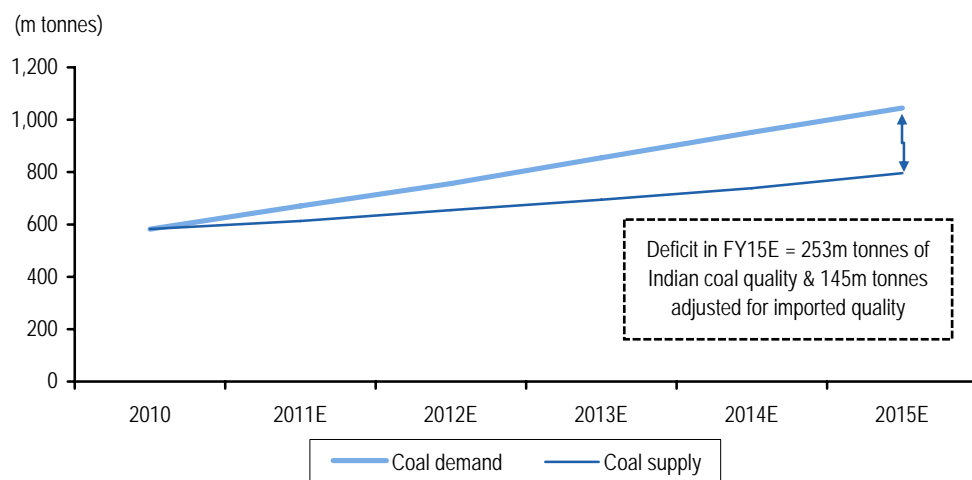


Source: Daiwa forecasts

As demand outpaces supply, we forecast a coal deficit of 145m tonnes for FY15

Based on our forecasts of a 12% coal-demand CAGR and a 6% coal-supply CAGR from FY10-15, we forecast a deficit of 142m tonnes (adjusted for imported coal quality). This deficit will have to be bridged with imports (forced imports) as power plants depending on domestic coal from CIL may have to resort to importing coal as CIL may not be able to meet all of their coal requirements.

India: coal deficit scenario (FY15)



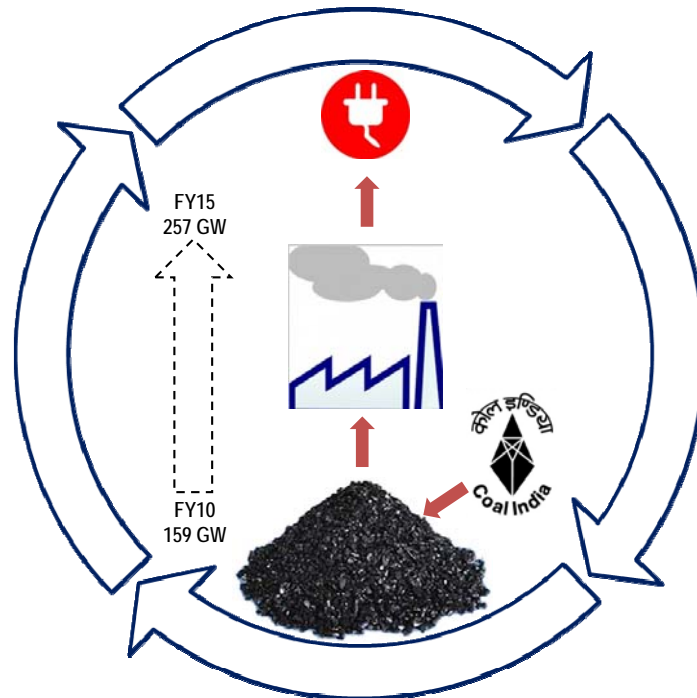
Source: Daiwa forecasts

Appendix 4

CIL: structurally best-placed globally

No demand/offtake risk for CIL. We forecast coal demand to expand at a 12% CAGR from FY10-15, and a supply growth CAGR of 6%

We forecast India's power capacity to increase from 159GW for FY10 to 257GW for FY15; about 60% of incremental capacity will be based on linkage



CIL accounts for 81% of indigenous coal production; and meets 72% of the country's coal requirements

Expansion projects envisaged to add about 200m tpa once fully commissioned, in addition to 111m tpa beneficiation projects

Source: Daiwa

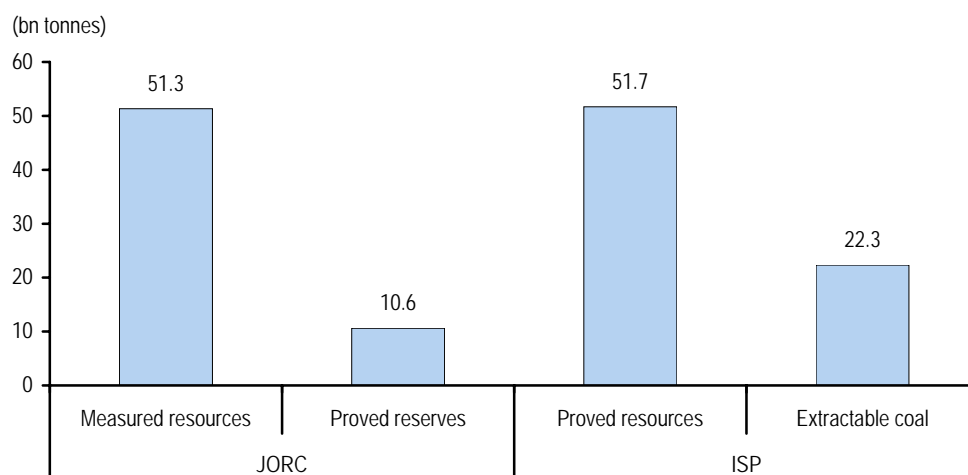
Appendix 5

CIL: largest coal company globally

Total reserves of 18.6bn tonnes; 10.6bn tonnes of proven reserves

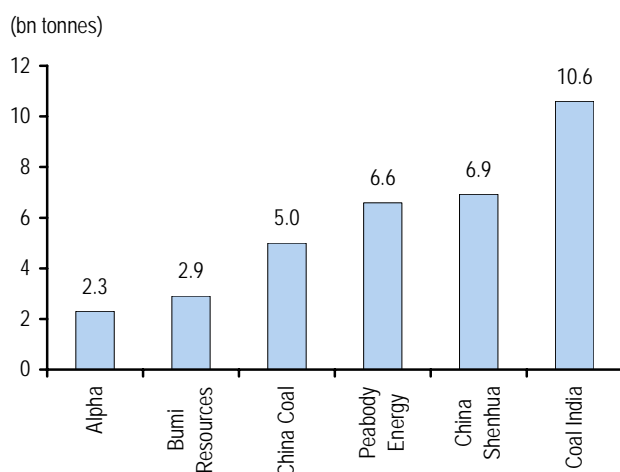
With 18.6bn tonnes of total reserves currently, of which 10.6bn tonnes are proven reserves, and a measured resource of 51.3bn tonnes according to JORC standards, we estimate that CIL is the largest coal company globally. For FY10, the company's total coal production was 431m tonnes, nearly 1.8x that of the second-largest player globally.

CIL: resources & reserves under JORC and ISP standards



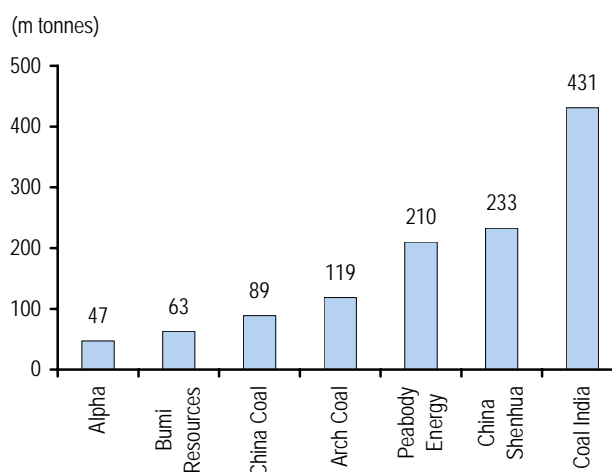
Source: Company

CIL: proven reserves comparison table



Source: Company; Note: as per JORC standards

CIL: production compared with other producers globally



Source: Company

Reserves and production: 21 coal fields and 471 mines

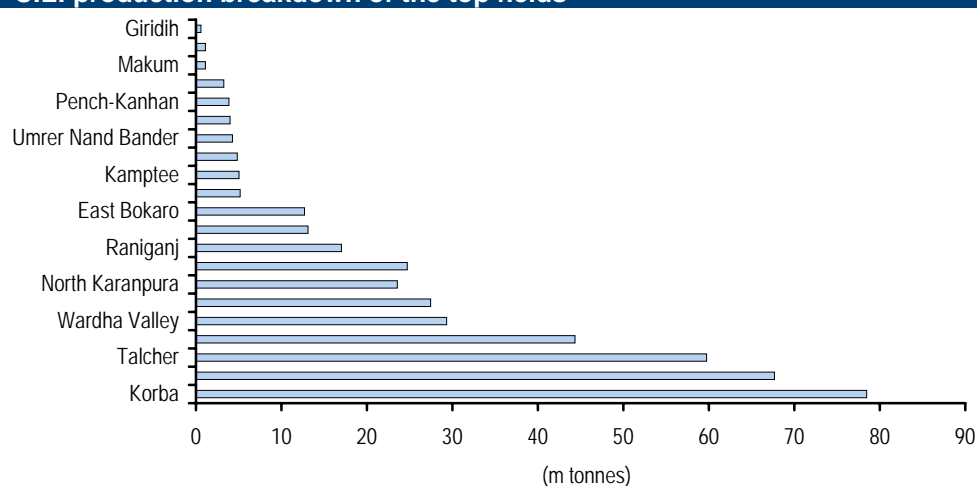
For FY10, CIL operated across 21 coal fields in eight states. The company had 471 operational mines, of which 273 were underground mines, 163 were open-cast mines and 35 were mixed mines. Despite its large operating landscape, its top five fields accounted for 65% of its FY10 production.

CIL: resources and reserves based on JORC guidelines (m tonnes)

	Operating subsidiary	Resources measured	Reserves proved	Reserves probable	Reserves total	Operational mines (No.) FY10
Korba	SECL	3,474	2,006	387	2,393	15
Singrauli	NCL	3,284	1,878	13	1,891	10
Talcher	MCL	7,972	2,630	2,542	5,172	13
IB Valley	MCL	3,615	1,244	1,158	2,402	12
Wardha Valley	WCL	1,850	247	436	683	38
Jharia	BCCL	5,868	315	183	499	78
North Karanpura	CCL	4,502	421	1,605	2,026	11
Central India Coalfields	SECL	2,380	279	234	513	72
Raniganj	ECL/BCCL	7,344	307	25	333	107
Rajmahal/Deogarh	ECL	1,248	456	90	546	4
East Bokaro	CCL	2,063	84	465	549	19
West Bokaro	CCL	1,483	309	99	408	15
Kamptee	WCL	755	107	40	147	12
Mand-Raigarh	SECL	1,913	37	617	654	4
Umrer Nanad Bander	WCL	558	37	173	209	3
South Karanpura	CCL	1,445	130	57	187	15
Pench-Kanhan	WCL	673	9	44	53	24
Pathakhera	WCL	188	28	49	77	8
Makum	NEC	308	50	1	51	8
Ramgarh	CCL	383	8	51	58	1
Giridih	CCL	-	15	-	15	2
Total		51,306	10,595	8,268	18,863	471

Source: Company

65% of FY10 production came from the top five fields (m tonnes)

CIL: production breakdown of the top fields

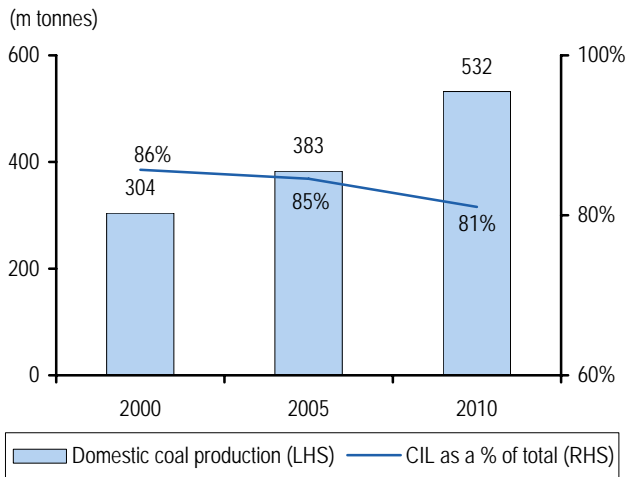
Source: Company

The dominant player in the domestic market

For FY10, accounted for 81% of domestic production, 72% of total coal supply and 47% of total reserves

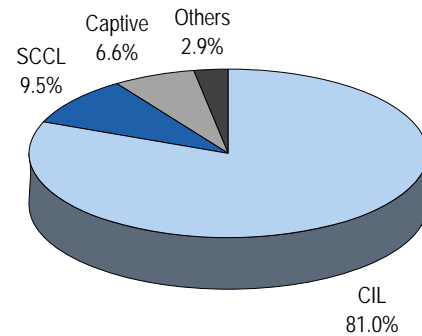
CIL's 51.3bn tonnes of proven reserves accounted for 47% of the country's proven reserves of 110bn tonnes. With regard to production/supply, for FY10, CIL accounted for 81% of total domestic production of 532m tonnes, and 72% of total supply (including imports) of 600m tonnes.

India: indigenous coal production (FY10)



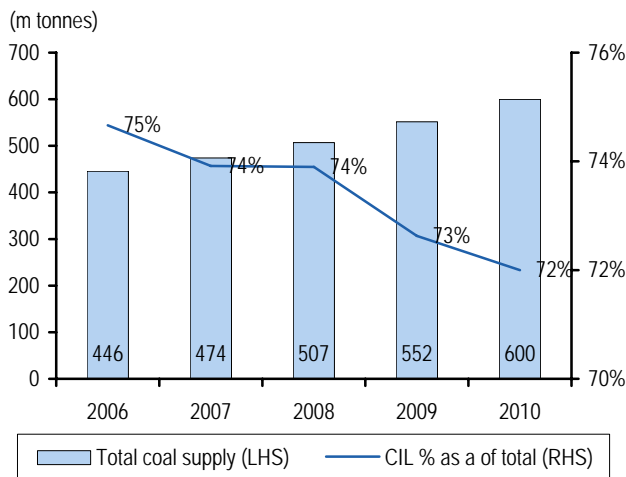
Source: Ministry of Coal

India: domestic coal production (FY10)



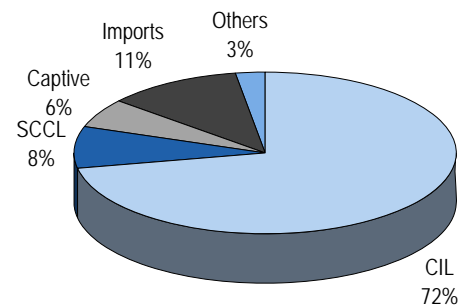
Source: Ministry of Coal

India: coal supply (FY10)



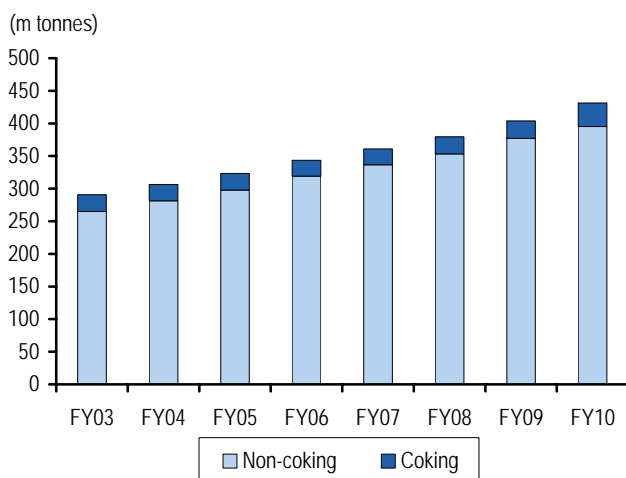
Source: Ministry of Coal

India: total coal supply by source



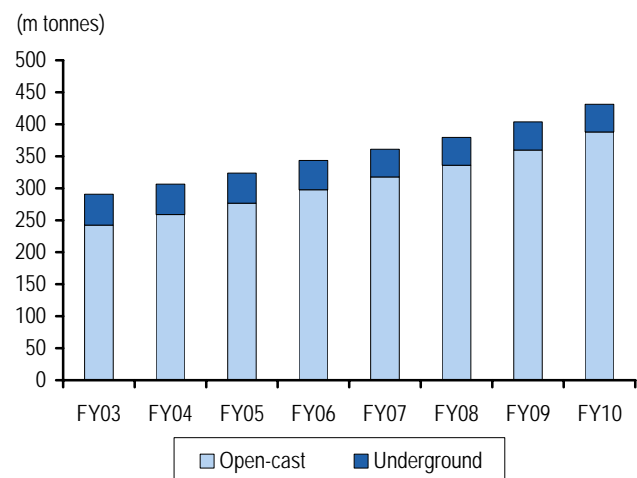
Source: Ministry of Coal

CIL: non-coking vs. coking coal



Source: Company

CIL: opencast mining vs. underground mining



Source: Company

CIL: non-coking coal grades (m tonnes)				
	FY07	FY08	FY09	FY10
Non-coking coal				
A	5.0	4.9	4.6	4.6
B	20.4	21.4	22.7	23.7
C	41.2	41.8	39.3	44.4
D	32.9	34.7	34.7	34.7
E	84.1	89.4	99.0	95.7
F	153.0	161.1	177.0	191.9
G	0.0	0.0	0.0	0.0
Total non-coking	336.7	353.3	377.2	395.1
Coking coal				
Steel grade I	0.1	0.1	0.1	0.1
Steel grade II	0.6	0.3	1.0	1.4
Washery grade I	0.3	0.5	0.3	0.3
Washery grade II	2.1	2.0	1.9	1.6
Washery grade III	6.0	6.2	6.6	8.0
Washery grade IV	15.0	17.0	16.7	24.6
Others (SC-1/II/SLV)	0.2	0.2	0.0	0.2
Total coking	24.3	26.2	26.5	36.1
Total production	360.9	379.5	403.7	431.3

Source: Company

CIL: production subsidiaries								
	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10
ECL	27	28	27	25	30	24	28	30
BCCL	24	23	22	30	24	25	26	28
CCL	37	37	37	41	41	44	43	47
NCL	45	47	50	52	52	60	64	68
WCL	38	40	41	43	43	44	45	46
SECL	67	71	79	83	89	94	101	108
MCL	52	60	66	70	80	88	96	104
NEC	1	1	1	1	1	1	1	1
Total	291	306	323	343	361	379	404	431

Source: Company

Appendix 6

Implementation of the CEPI regulation

In January 2010, India's Central Pollution board, in consultation with the Indian Institute of Technology Delhi, prepared a report on pollution levels in 88 industrial clusters across India. This was done primarily to arrive at a rational number to characterise the quality of the environment at a particular industrial cluster. Hence, CEPI was derived to capture pollution at three levels, namely: land (soil & ground), water, and air.

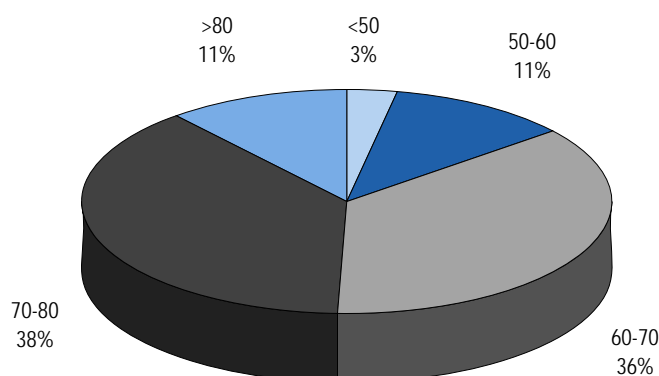
Implications of CEPI

The CEPI committee has suggested a benchmark index level of 70 points. Any area that has a CEPI score of more than 70 would be asked to bring down the number to below the benchmark level. This would be done by either reducing pollution from existing industrial units in the area or by not allowing new units to set up operations.

The initial report shows that 43 clusters out of the 88 have pollution levels at critical levels, implying an index score of more than 70. Hence, in order to reduce pollution in these areas, the MoEF has not given environmental approvals to new plants or mines.

The implementation of the CEPI regulation has had a negative impact on four of CIL's coal fields that are in an industrial cluster that had a CEPI score of more than 70. These four fields accounted for 48% of its FY10 production and 56% of its FY10 reserves. As a result of this, the company has cut its production target for FY11 by 16m tonnes to 435m tonnes and that for FY12 by 39m tonnes to 447m tonnes.

India: distribution of industrial clusters based on their CEPI scores



Source: MoEF

Review meeting in March 2011

The MoEF plans to hold a meeting at the end of March 2011 to review the impact of CEPI. Any extension of CEPI beyond March would result in the company's FY13 production being impacted negatively, in our view. However, we believe CIL is likely to contest the blanket approach used by MoEF to calculate the CEPI of a cluster. CIL believes (based on its internal studies) that coal mining per se has a CEPI score of less than 70 and that it is the majority of the pithead consumers that account for pollution. Hence, CIL is proposing that MoEF take an industry-based approach, whereby coal mining may be spared due to its relatively low contribution to pollution.

Appendix 7

MMDR Act 2011

Mines & Minerals (Development & Regulation) Act 2011

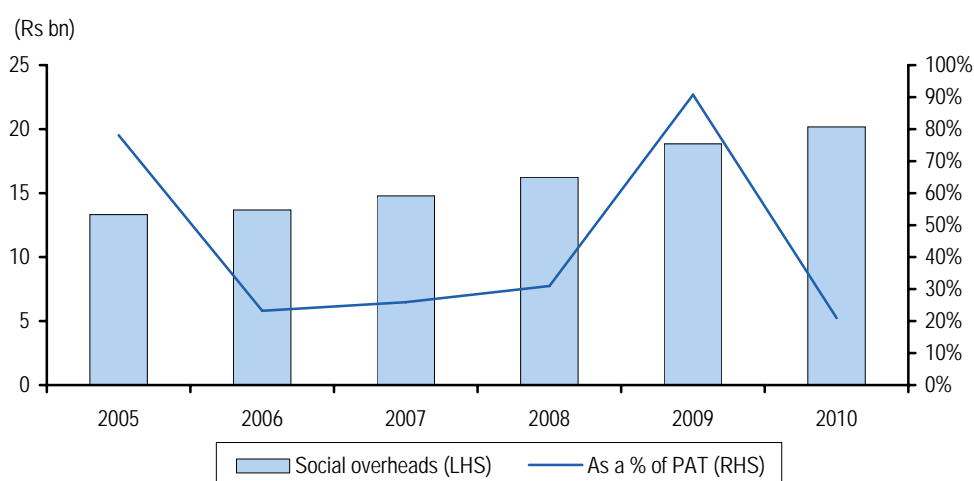
The *MMDR Act 1957* is up for revision and the bill has been submitted to Parliament for discussion during the current session. The new *MMDR Act 2011* proposes giving more power to the state governments, and streamlining the process of mine allocation and mine development. However, we believe the most important suggestion under the revised act is that the mining lease holders will have to share 26% of their PAT with the land owners.

26% profit-sharing clause: a boon or bane?

The *MMDR Act 2011* suggests that mining companies share 26% of their PAT with the land owners. This clause is being debated currently, and if implemented, it would be a negative for the mining sector, in our view, but a positive for the social upliftment of the area where a mine is located.

Currently, CIL does not make a specific provision to account for such profit sharing. If the act is implemented, management said any incremental costs would be passed on to the end users. We calculate that Rs60/tonne in additional costs will be passed on to consumers, based on our FY11 earnings forecasts. However, the company does have an operating expenditure line item for 'social overheads'. This expenditure is mostly to help people affected by a project and the area surrounding a mine. For FY10, CIL spent Rs20bn on social overheads, which accounted for 21% of PAT and 4.5% of revenue.

CIL: social overheads as a % of PAT



Source: Company

Appendix 8

Subsidiaries

CIL has nine subsidiaries, eight of which produce coal, while CMPDIL is the company's consultancy arm. Two subsidiaries, SECL and MCL, accounted for 49% of the company's total FY10 production, and 59% of its reserves.

CIL: subsidiaries' reserves and production (FY10)				
	Reserves	% of reserves	Production	% of production
ECL	878	5	30	7
BCCL	499	3	28	6
CCL	3,242	17	47	11
NCL	1,891	10	68	16
WCL	1,092	6	46	11
SECL	3,561	19	108	25
MCL	7,574	40	104	24
NEC	51	0	1	0
Total	18,786		431	

Source: Company

Note: ECL & BCCL share a part of the *Raniganj* fields

Eastern Coalfields (ECL)

ECL operates mines mostly in the West Bengal and Jharkhand areas. It owns the rights to mining in the Raniganj area along with BCCL, which has one of the best quality coal grades (A,B,C, and D) GCV, ranging from 4,800-6,400Kcal. As at the end of FY10, it operated 108 mines, of which almost 75% were underground. It holds 5% of CIL's total reserves, and with 30m tonnes of production for FY10, it accounted for 7% of CIL's total FY10 production.

ECL: financial summary				
	Units	FY08	FY09	FY10
Production	m tonnes	24	28	30
Dispatches	m tonnes	25	28	29
Revenue	Rs m	31,876	38,374	52,278
ASP	Rs/tonne	1,253	1,358	1,806
EBITDA	Rs m	(9,072)	(15,989)	1,918
EBITDA/tonne	Rs/tonne			66
PAT	Rs m	(10,299)	(21,091)	3,334
Manpower	No.	94,943	90,470	85,617

Source: Company

Bharat Coking Coalfields (BCCL)

BCCL operates the *Jharia* coal field in the state of Jharkhand, and it co-owns certain mines with ECL in the *Raniganj* coal field. BCCL produces mainly coking coal and caters to the steel sector. About 50% of its 81 mines are underground. It was a loss-making subsidiary until FY10, wherein it turned profitable. BCCL accounts for 3% of reserves, and with 28m tonnes of production for FY10, it accounted for 6% of CIL's total FY10 production.

BCCL financial summary				
	Units	FY08	FY09	FY10
Production	m tonnes	25	26	28
Dispatches	m tonnes	24	25	26
Revenues	Rs m	29,548	37,133	45,151
ASP	Rs/tonne	1,227	1,509	1,705
EBITDA	Rs m	(5,470)	(16,441)	1,359
EBITDA/tonne	Rs/tonne			51
PAT	Rs m	(5,398)	(13,805)	7,942
Manpower	No.	80,051	76,369	72,469

Source: Company

Central Coalfields (CCL)

CCL's coal fields are located in the state of Jharkhand, in the northeast of India. The company operates 63 mines across six fields, the biggest one being the *North Karanpura* field, which has current reserves of 2bn tonnes (accounting for 11% of CIL's total annual reserves). The company's operations have been negatively impacted by Maoist unrest, while evacuation of coal from some of its new mine projects in the *North Karanpura* fields may be negatively affected due to the country's inadequate rail infrastructure. CCL's future plans depend on the 93km *Tori-Shivpur-Hazaribagh* railway line that is being constructed by Indian Railways, which will aid the evacuation of coal from the *North Karanpura* fields. For FY10, the company accounted for 17% of CIL's total reserves and 11% to its production.

CCL: financial summary

	Units	FY08	FY09	FY10
Production	m tonnes	44	43	47
Dispatches	m tonnes	42	44	45
Revenue	Rs m	43,629	52,109	54,882
ASP	Rs/tonne	1,038	1,189	1,211
EBITDA	Rs m	9,323	5,165	12,127
EBITDA/tonne	Rs/tonne	222	118	268
PAT	Rs m	5,015	471	9,658
Manpower	No.	60,209	57,681	55,305

Source: Company

Northern Coalfields (NCL)

NCL operates the *Singrauli* coal field, which accounted for 10% of CIL's FY10 reserves and 68m tonnes of CIL's total production, or 16%. It operates 10 coal mines, all of which are open-cast and in Madhya Pradesh and Uttar Pradesh States. It supplies its entire production to India's power houses.

NCL: financial summary

	Units	FY08	FY09	FY10
Production	m tonnes	60	64	68
Dispatches	m tonnes	59	64	65
Revenue	Rs m	54,552	65,519	72,648
ASP	Rs/tonne	924	1,020	1,115
EBITDA	Rs m	24,328	27,274	32,371
EBITDA/tonne	Rs/tonne	412	425	497
PAT	Rs m	17,717	19,609	23,251
Manpower	No.	16,697	16,450	16,373

Source: Company

Western Coalfields (WCL)

WCL operates 85 mines within the Maharashtra and Madhya Pradesh regions. With 46m tonnes of production for FY10, it accounted for 11% of CIL's total FY10 production, and its reserves of 1bn tonnes accounted for 6% of CIL's total FY10 reserves.

WCL: financial summary

	Units	FY08	FY09	FY10
Production	m tonnes	44	45	46
Dispatches	m tonnes	45	45	44
Revenue	Rs m	49,092	56,340	58,366
ASP	Rs/tonne	1,093	1,242	1,325
EBITDA	Rs m	6,565	1,648	5,446
EBITDA/tonne	Rs/tonne	146	36	124
PAT	Rs m	6,118	3,354	6,456
Manpower	No.	64,160	62,492	60,870

Source: Company

South Eastern Coalfields (SECL)

SECL is CIL's largest subsidiary, accounting for 25% of CIL's FY10 production (19% of reserves), and was the first subsidiary to cross the 100m tonne mark in terms of production in FY09. For FY10, its PAT of Rs21bn accounted for 22% of CIL's consolidated PAT of Rs96bn. SECL operates mostly in the Chhattisgarh and Madhya Pradesh regions, catering mainly to the power sector through its 91 mines. Its largest coal field is *Korba*, which had production of 78.5m tonnes for FY10, while SECL's other major mines, such as *Gevra* and *Dipka* saw annual FY10 production levels of 35mn tonnes and 24m tonnes, respectively.

SECL financial summary

	Units	FY08	FY09	FY10
Production	m tonnes	94	101	108
Dispatches	m tonnes	95	103	104
Revenue	Rs m	71,816	84,857	93,716
ASP	Rs/tonne	756	824	901
EBITDA	Rs m	16,188	12,414	22,633
EBITDA/tonne	Rs/tonne	170	120	218
PAT	Rs m	13,588	10,311	21,172
Manpower	No.	83,423	82,054	80,381

Source: Company

Mahanadi Coalfields (MCL)

MCL is CIL's second-largest subsidiary, operating in the state of Orissa. With two major coal fields (*Talcher* and *Ib Valley*) under its fold, the company had total production of 104m tonnes for FY10 (24% of CIL's total), and holds current reserves of 7.6bn tonnes (40% of CIL's total). It is also the most efficient subsidiary within CIL, with 25 mines producing about 100m tonnes a year and an employee base of 21,000.

MCL: financial summary

	Units	FY08	FY09	FY10
Production	m tonnes	88	96	104
Dispatches	m tonnes	84	91	100
Revenue	Rs m	43,471	53,913	62,295
ASP	Rs/tonne	520	591	622
EBITDA	Rs m	15,412	16,943	18,482
EBITDA/tonne	Rs/tonne	184	186	184
PAT	Rs m	17,000	17,180	19,467
Manpower	No.	20,869	20,978	21,357

Source: Company

Appendix 9

On the ground: visit to *Dipka* and *Balgi* mines

Dipka opencast mine visit: SECL

Project background

Dipka is CIL's second-largest coal mine by production

We visited SECL's *Dipka* opencast project at the end of February, with a targeted production of 25m tpa for FY11, it is the second-largest mine among CIL's 471 operational coal mines. With proven reserves of 617m tonnes, the life of the mine is estimated by SECL to be 25 years, based on the current rate of production.

Operational details

Cost of production is Rs297/tonne with an ASP of Rs630/tonne

The mine produces Grade F quality coal with a GCV range of 3,600-4,201Kcal/kg and has a suitable strip ratio of 1:1. SECL incurs a cash cost of Rs297/tonne (including provisions for the overburden removal) and achieves an ASP of Rs630/tonne.

10m tpa expansion project in the pipeline

Capacities being expanded mostly to meet *Sipat*'s requirement

SECL has applied for an expansion project of 10m tonnes. While approval by the MOEF is pending, the company is confident that the expansion project will come on-stream over the next 24 months. The project has not been negatively affected either by CEPI or the no-go areas introduced by the MOEF.

NTPC's *Sipat* is the largest consumer

Almost its entire production is supplied to power houses. NTPC's *Sipat Stage 2* is the largest consumer, with a fuel-supply agreement for 5.04m tpa. The *Dipka* expansion project of 10m tonnes has been planned to meet the requirements of *Sipat Stage 1*. At full capacity, *Sipat* would account for almost 40% of the mine's dispatches.

Dipka: 617m tonnes of reserves; strip ratio of 1:1

SALIENT INFORMATION DIPKA EXPN. PPROJECT	
1. MINE CAPACITY	: 25 MT
2. COAL RESERVES	: 617 MT
3. OBR	: 615 MT
4. STRIPPING RATIO	: 1:1
5. GRADE OF COAL	: ROM-F
6. MAN POWER REQUIRED (AS PER PR)	: 2594
EXISTING	: 1619
7. CAPITAL QUALITY	: Rs.-574.95 CR (ADDITIONAL)
8. LINKAGE	: NTPC SEEPAT SPGL OTHER CUSTOMERS
9. OMS (AS PER PR)	: 48.07
10. LIFE	: 25 YEARS

Source: Daiwa

Dipka: production history; 25m tpa target for FY11

Sl. No.	FINANCIAL YEAR.	PRODUCTION OF COAL IN MT
1.	1998 - 99	6.90
2.	1999 - 00	8.22
3.	2000 - 01	9.11
4.	2001 - 02	11.95
5.	2002 - 03	12.68
6.	2003 - 04	13.68
7.	2004 - 05	15.39
8.	2005 - 06	17.94
9.	2006 - 07	19.08
10.	2007 - 08	21.50
11.	2008 - 09	22.81
12.	2009 - 10	24.09
13.	2010 - 11	25.00 (TARGET)
14.		

Source: Daiwa

Dipka: coal produce waiting to be transported

Source: Daiwa

Dipka: overburden dumps

Source: Daiwa

Dipka: dumpers used to transport overburden

Source: Daiwa

Dipka: dumpers and shovels at the mine site

Source: Daiwa

Coal loading point: visit to the MGR

Loading point is 42km away from the power project

We visited the coal-loading point and the MGR system at SECL's Dipka mine. The loading site is located 42km away from NTPC's *Sipat* (2980MW) power plant and is closer to the *Dipka* mine head.

Project details

Rapid loading system and BOBR wagons aid in a fast turnaround

In order to meet the coal requirements of *Sipat*, NTPC and SECL have developed a state-of-the-art rapid coal loading and transportation system. Coal from the *Dipka* mine is transported by road (around 5km) to the coal hopper, which then loads the coal onto conveyor belts (length of 1-2km) and is fed into the two silos (each with a carrying capacity of 600 tonnes), which is then loaded on to railway wagons and transported to the coal stack yard at the power plant (42km).

Operational details

Currently transports 14,000 tonnes/day but can handle up to 41,000 tonnes/day

The current system supports the coal requirements of *Stage 2* (1,000MW), which are around 14,000 tonnes/day (5m tpa); however, with a few changes in the turnaround time, management estimates that the company will be in a position to meet the entire requirement of 15m tpa (41,000 tonnes/day) once *Stage 1* is operational. Currently, NTPC takes 40 minutes each to load and unload a 40-wagon rake. Loading is done by a rapid loading system, and since NTPC uses bogie-open bottom rapid discharge (BOBR) wagons, unloading is also automated.

Current operational details of the MGR system

Locomotives (no.)	9
Wagons (no.)	355
1 rake	40 wagons
Pay load/rake (tonnes)	2,400
Loading time (minutes)	40
Unloading time (minutes)	40
Travel time (To-Fro) (hours)	4
Avg. turnaround time/rake (hours)	6
Avg. speed of rake (km/hr)	20-25
Trips/day/rake (trips)	4

Source: Company

Dipka: coal being ferried by road from mines



Source: Daiwa

Dipka: road leading to the loading point



Source: Daiwa

Dipka: conveyors leading to the silo



Source: Daiwa

Dipka: coal travels from the hopper to the silo



Source: Daiwa

The turnaround time for each rake is six hours currently ...

... but NTPC is looking to reduce this to four hours to meet the requirements of Stage 1

Dipka: view of SILO-1 (LHS) and SILO-2 (RHS)



Source: Daiwa

Dipka: rake waiting to be loaded



Source: Daiwa

Dipka: wagon exiting the loading point



Source: Daiwa

Balgi underground mine visit (SECL)

Project background

The *Balgi 1* underground project is located in SECL's *Korba* coalfield. With mineable reserves of 8m tonnes and an annual production of 292,000 tonnes, the mine life is estimated by SECL to be 27 years. The depth of seam ranges from 20-260 metres and is mined by using the broad and pillar method. The mine is incline-based, and we had to walk 1.5km to reach the mine head. The mine has two inclines, one used for the haulage of coal along a conveyor belt and the other for transportation and shifting materials.

The mine produces high grades of steam coal classified as Grades B & C, with an average heat value of 5,679Kcal/kg. It has a substantially high cost of production at Rs1,450/tonne against an ASP of Rs1,350/tonne.

Balgi 1: entrance to underground mine



Source: Daiwa

Balgi 1: workers getting ready to start drilling post blasting



Source: Daiwa

Balgi 1: bore hole drilling under way



Source: Daiwa

Balgi 1: SDL used for loading coal on conveyor belt



Source: Daiwa



Source: Daiwa



Source: Daiwa

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