Initiation of Coverage

Bharat Heavy Electricals Ltd (BHEL)

Losing steam

Stock Rating:	2-EQUAL WEIGHT
Sector View:	1-POSITIVE
Ticker:	BHEL.NS
Price (29-Feb-2008) :	INR 2282.00
Price Target:	INR 2413.00
INDIA BSE 30 SENSITIVE:	17650.57

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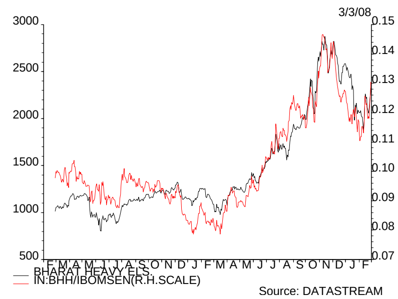
We believe that there is limited upside from current share price because we expect both order inflows and EPS growth, the two key drivers of stock performance over the last three years, to slow. We initiate coverage of BHEL with a 2-Equal weight rating and a 12-month price target of INR2,413.

- We expect the order book coverage ratio to come down to 2.0 in FY10E from a high of 4.0 in FY08, and EPS CAGR to slow to 31% during FY08E-11E, as compared with 47% during FY05-FY08E.
- Long-term risks from increased competition and regulatory changes like tariff-based bidding are not yet appreciated by the market, in our view.
- We initiate coverage of BHEL with a 2-Equal weight rating and 12-month price target of INR2,413.

FY Mar (INR)	2007A	2008E	2009E
Revenue (mn)	172375.0	210298.0	283902.0
Net Profit (mn)	23986.0	30438.0	42902.0
EPS	49.0	62.2	87.6
EPS Growth (%)	43.1	26.9	41.0
DPS	11.8	15.0	21.1
P/E (x)	46.6	36.7	26.1
EV/EBITDA (%)	23.6	18.8	13.2
Divided Yield (%)	0.5	0.7	0.9

Financial Summary	
3-Yr EPS Growth(%)	43.1
PEG (3-Yr CAGR)	1.0
P/B	8.8
ROE (%)	29.6
Debt To Capital (%)	6.0
Dividend payout(%)	23.6

Market Data	
Market Cap (INR mn)	1117085
Market cap (US$ mn)	28015
Shares Outstanding (mn)	489.5
6-mo daily T/O (US$ mn)	9
Free Float (%)	N/A
Foreign Shareholding (%)	N/A



Source: DATASTREAM

Analyst Certification

We, Satish Kumar and Abhinav Sharma, hereby certify (1) that the views expressed in this research Company Report accurately reflect our personal views about any or all of the subject securities or issuers referred to in this Company Report and (2) no part of our compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this Company Report.

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March 04, 2008

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Investment highlights

BHEL is the largest power generation equipment company in India

BHEL is the largest power generation equipment manufacturer in India with a 65% share of the total installed capacity of 141,000 mega watts (MW). The company is a public sector undertaking (PSU) and has technology tie-ups with companies such as Alstom SA (ALO FP, 1-OW) and GE (GE US, 1-OW) for boilers and turbines.

It has remained the only large utility boiler and turbine maker in the country for six decades after independence largely due to the following:

- The sector has been dominated by central and state government-owned utilities which have preferred BHEL over private players, and
- The size of power capacity additions in India has not been too large to attract global players.

The stock has outperformed the BSE Sensex over FY05-FY08

The stock has appreciated by 500% in the three-year period over FY05-FY08, while the benchmark BSE Sensex has appreciated by 171% over the same period. We believe that the outperformance has been driven by:

- Increase in order book coverage ratio from 2.8 in FY05 to 4.0 in FY08E, and,
- EPS CAGR of 47% over FY05-FY08E led by revenue CAGR of 30% and EBITDA margin expansion of 6.6%.

Increase in order book coverage ratio have been driven by bunched up power plant ordering by utilities

In the initial years of the Tenth Plan Period (FY02-FY07), ordering activity for power plants did not pick up and so utilities placed large orders on BHEL in FY04 and FY05 for the projects that were to come up in the Tenth Five Year Plan. This bunching up of orders led to an increase in order book coverage ratio (order book coverage ratio = year-end order book/year's revenue) from 2.3 in FY03 to 3.4 in FY05.

Similar bunching up of orders has happened in FY07 and FY08 when BHEL has won large projects coming up in the Eleventh Five Year Plan period (FY07-FY12). This increased order book coverage ratio to 3.2 in FY07 and we expect the ratio to go up to 4.0 by end FY08.

Figure 1: Order inflows and order book coverage ratio

	FY04	FY05	FY06	FY07	FY08E
Order inflow (INR bn)	158	178	189	346	500
Ratio	2.9	3.4	2.8	3.2	4.0

Source: Company data, Lehman Brothers estimates

But we believe order inflow will slow in 2HFY09E and in FY10E...

Ordering activity has been very robust for the Eleventh Five Year Plan and 65,500 MW of power capacity has already been commissioned or ordered. Thus another 13,109 MW of capacity remains to be ordered, which we expect will be ordered by the first half of FY09E We expect ordering activity to slow down in 2HFY09E and in FY10E as Eleventh Five Year Plan projects would have been ordered by then and ordering for Twelfth Five Year Plan projects would start only in FY11.

Figure 2: Eleventh Five Year Plan project status

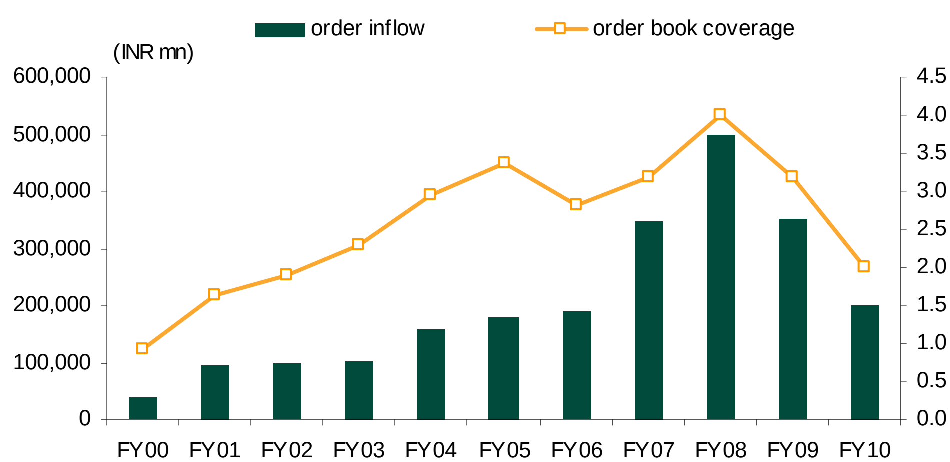
Capacity (MW)	Thermal	Hydro	Nuclear
Planned	58,644	16,553	3,380
Commissioned	4,450	1,195	220
Under construction/ordered	43,100	13,343	3,160
Yet to be ordered	11,094	2,015	0

Source: Central Electricity Authority (CEA), Lehman Brothers research

...leading to an expected drop in the order book coverage ratio

We expect ordering activity to slow in 2HFY09E and FY10E and thus we are building in order inflows of INR350 billion in FY09E and INR200 billion in FY10E. We expect this to lead to a sharp reduction in the order book coverage ratio as shown below.

Figure 3: Order book coverage ratio and order inflow (INR mn)



Source: Company data, Lehman Brothers estimates

We expect EPS CAGR in FY08E-11E to slow compared with FY05-08E

We estimate the company's EPS to increase at a CAGR of 31% over FY08E-11E, as compared with a CAGR of 47% during FY05-08E. This would be driven by revenue CAGR of 27% and operating margin expansion by 2.5%, in our view.

Growth in revenues will likely be driven by capacity expansion, as the company has expanded its capacity to 10,000 MW from 6,000 MW and plans to take it up to 15,000 MW by December 2009. We think margin expansion will be mainly driven by operational leverage. We estimate margins to expand by 2.5% over FY08E-FY11E, which is much lower in comparison to FY05-FY08E.

Consensus is attributing higher multiple on FY10, which we believe is not justified

Our EPS estimate for FY09 is INR87.5, which is below consensus EPS of INR92, while our EPS estimate for FY10 is INR117.5 which is near consensus estimate of INR121. However, consensus price target is at INR2,950 (*Source: Bloomberg*), which in turn implies that consensus has assigned a higher exit multiple of 25, as compared with our implied multiple of 20. We disagree with the 25 multiple for the following reasons:

(1) FY10E EPS of INR117.9 factors in the best case scenario, in our view

- As per our estimates, the company will need to make 9,700 MW of equipment in FY09 and 12,600 MW in FY10. We expect the company to have a capacity of 15,000 MW only in the last quarter of FY10, and hence, we think the assumption of 12,600 MW is aggressive on our part.

- Our assumption for FY10 margin is 22.5%, an expansion of 2.5% from the FY08 level. We think it is aggressive because we have assumed basic wage costs to increase at a CAGR of only 20% during this period, given BHEL's admission that it expects to hire 20,000 employees over the next five years to support the high growth rates. This is an increase of nearly 50% from the current base of 42,000 employees.

- We have not built in any execution delays on BHEL's part and have assumed that it will be able to utilize its capacity fully. It is worth mentioning that the Power Ministry of India has been a severe critic of BHEL's capability to execute projects on time. We believe our assumption that BHEL will be able to deliver more than its capacity factors in any potential upside.

(2) We think long-term concerns are not priced in at a FY10E P/E of 25x

We believe that BHEL faces the following three key long-term risks that can hit its revenue growth as well as margin.

- We expect increasing competition to force the company to decrease its prices and, in turn, hit its high margin. BHEL's price quotes are 10%-15% higher than the price quoted for similar equipment by Chinese companies such as Dongfang Electrical Machinery (1072 HK, not rated) and Shanghai Electric Company (2727 HK, not rated).

- Rising private sector participation in power generation would lead to higher competition and lower prices, as all private sector projects will be awarded on tariff-based bidding. Around 40% of the total power projects in the Twelfth Five Year Plan are expected to be developed by the private sector compared with only 14% in the Eleventh Five Year Plan.

- Nearly 45% of thermal power capacity in the Twelfth Five Year Plan is to come on supercritical technology, where BHEL does not have any advantage over competition like the JV between Larsen and Toubro (LT IN, 1-OW) and Mitsubishi Heavy Industries (7011 JP, not rated).

We value the stock using DCF and initiate coverage with a 2-Equal weight rating

We initiate coverage of BHEL with a 2-Equal weight rating and a 12-month DCF-based price target of INR2,413. At our price target, the stock would trade at 20x FY10E EPS. We have valued the stock on a DCF-based model, assuming a terminal growth rate of 5% and cost of equity of 12%.

Investment risks

Downside risks

(1) Slippage in capacity additions

India plans to add 78,577 MW of power capacity over FY07-12. This capacity addition will require coordinated efforts from main plant manufacturers, developers and balance of plant (BOP) equipment manufacturers. Any slip-ups can lead to a delay in power capacity addition. So far, things appear on track but the possibility of delays cannot be ruled out as according to CEA, capacity augmentation is required by BOP equipment manufacturers to support this kind of capacity addition.

(2) Slowdown in power sector investments

Another risk to BHEL's earnings momentum will be any significant slowdown in power sector investments in India. The sector has witnessed various regulatory changes which hold the key to the proposed pace of investments, and any slowdown or hesitancy in their implementation is likely to have an adverse impact on BHEL's growth, in our view.

(3) Competitive threat from China could surface earlier than expected

BHEL's equipment is costlier than that supplied by Chinese companies such as Shanghai Electric Co and Dongfang Electrical Machinery. These companies have received some orders in India but they have been restricted mainly to the private sector. We point to their large order backlogs in the Chinese market. We expect the threat from China will manifest in two years from now when we expect China to slow capacity additions; however, any slowdown before that can lead these companies to aggressively target the Indian market and, in turn, likely lower prices and the margin for BHEL.

Upside risk

BHEL could increase its share in private sector projects

BHEL has a share of only 10% in private sector projects for the Eleventh Five Year Plan orders placed so far. If BHEL is able to break into the private sector utilities and increase its market share, then its overall market share can go up from the current 65%. This, we believe, is an upside risk to the stock price.

Valuation

We value the stock on DCF

We have valued BHEL using discounted cash flow (DCF) to equity with a terminal year of FY17. Our key assumptions are:

- Terminal growth rate of 5%.
- Cost of equity of 12%.
- Terminal year operating margin of 21.1%. We are building in an expansion in operating margin from the FY07 level of 18.7%, which we believe is on the aggressive side, given that we expect competition to increase in the long term and margins will be lower than those presently.

Figure 4: Cash flow projection

(INR mn)	FY08E	FY09E	FY10E	FY11E	FY12E	FY13E	FY14E	FY15E	FY16E	FY17E
Pre-tax profit	46,827	66,003	88,517	103,182	117,419	134,085	152,131	176,393	194,955	210,396
Depreciation	3,286	4,544	5,534	6,524	7,514	8,669	9,989	11,309	12,629	13,966
Change in working capital	5,746	8,614	13,370	1,701	4,327	6,714	7,345	11,647	7,060	4,516
Total tax paid	16,390	23,101	30,981	36,114	41,097	46,930	53,246	61,738	68,234	69,431
Cash flow from operations (a)	27,979	38,832	49,700	71,891	79,509	89,109	101,528	114,314	132,286	150,410
Capital expenditure	20,000	15,000	15,000	15,000	15,000	20,000	20,000	20,000	20,000	20,000
Cash flow from investing (b)	20,000	15,000	15,000	15,000	15,000	20,000	20,000	20,000	20,000	20,000
Free cash flow (a+b)	7,979	23,832	34,700	56,891	64,509	69,108	81,527	94,313	112,285	130,391
Dividend (incl. tax)	7,336	10,339	13,866	16,164	18,394	21,005	23,831	27,632	30,540	33,975
Cash flow from financing (c)	7,336	10,339	13,866	16,164	18,394	21,005	23,831	27,632	30,540	33,975
Net chg in cash (a+b+c)	643	13,493	20,834	40,727	46,116	48,104	57,695	66,681	81,745	96,415
Free Cash Flow to Equity	7,979	23,832	34,700	56,891	64,509	69,108	81,527	94,313	112,285	130,391

Source: Lehman Brothers estimates

Peer valuation

Figure 5: Peer valuation

	Ticker	LB Rating	Price (Local Currency)	P/E (x)	ROE (%)	Operating margins (%)
India						
BHEL	BHEL IN	2-EW	2,323.6	26.6	29.4	17.3
Suzlon Energy	SUEL IN	1 OW	298.2	23.2	27.7	16.7
ABB India	ABB IN	1 OW	1191.4	35.4	35.3	12.2
Siemens India	SIEM IN	Not rated	856.5	27.9	36.7	9.7
Crompton Greaves Ltd	CRG IN	1 OW	326.1	21.9	31.4	8.5
Average				27.0	32.1	12.9
Non-Japan Asia (ex India)						
Dong Fang Electrical Machinery Co.	1072 HK	Not rated	48.1	15.8	26.9	9.1
Harbin Power Equipment Co	1133 HK	Not rated	19.3	15.7	23.9	8.3
Doosan Heavy Engg.and Construction	034020 KS	Not rated	137500.0	30.7	5.1	11.5
Shanghai Electric Group Co.	2727 HK	Not rated	5.9	23.5	16.0	11.6
Average				21.4	18.0	10.1
Japan						
Mitsubishi Heavy Industries	7011 JP	Not rated	515.0	25.0	4.5	8.0
Hitachi Ltd.	6501 JP	Not rated	779.0	40.2	2.2	7.3
Average				32.6	3.4	7.7
Europe						
Siemens AG	SIE GR	1 OW	88.4	10.7	12.4	6.0
ABB Ltd	ABBN VX	1 OW	27.1	17.3	30.0	16.5
Alstom	ALO FP	1 OW	143.9	17.7	31.8	10.1
Schneider Electric SA	SU FP	1 OW	77.8	11.8	15.6	14.6
Average				14.4	22.5	11.8
North America						
General Electric Co.	GE US	1 OW	33.9	14.0	21.0	16.5
Jacobs Engineering Group	JEC US	2 EW	83.7	22.0	17.6	5.9
Cummins Inc.	CMI US	3 UW	52.8	12.0	30.9	13.0
Average				16.0	23.2	11.8

Source: Bloomberg for not rated stocks, Lehman Brothers estimates for rated stocks, prices as of February 28, 2008

Business outlook — Challenges ahead

India is set to add 78,577 MW in the Eleventh Five Year Plan

The Eleventh Five Year Plan has seen very robust ordering activity so far. The Tenth Five Year Plan saw an addition of 21,180 MW which was only 51% of the target addition of 41,110 MW, primarily because of delay in ordering (most of the orders were placed only towards the latter part of the plan in FY04 and FY05). In the Eleventh Five Year Plan, ordering has been on track so far and around 65,000 MW of capacity has been commissioned or ordered.

Figure 6: Target and actual capacity addition

	8th Plan	9th Plan	10th Plan	11th Plan
Target addition (MW)	30,538	40,245	41,110	78,577
Addition achieved (MW)	16,423	19,015	21,180	
Actual addition as % of target	53.80	47.20	51.50	

Source: CEA, Lehman Brothers research

Robust order inflow for BHEL in FY07 and FY08

BHEL has seen very strong order inflows for FY04-FY08 because of robust order activity during this period. The order inflow for the company in 9MFY08 has been INR344.6 billion, which is already close to total order inflow for FY07.

Figure 7: Order inflow

	FY04	FY05	FY06	FY07	FY08 (Nine months)
Order inflow (INR billion)	158	178	189	356	344
Order inflow (USD billion)	4.0	4.5	4.7	8.9	8.6

Source: Company data, Lehman Brothers research

We expect this to continue till 1HFY09

For the projects under construction for the Eleventh Five Year Plan, BHEL has a high share among projects developed by central public sector units (CPSUs) and state electricity boards (SEBs) but it has only 10% share for private sector projects. Please see BHEL's market share for various developers in the table below.

Figure 8: Market share of BHEL

(in MW)	Total projects under construction	Projects undertaken by BHEL	Market share of BHEL (%)
SEBs	15,854	12,267	77.40
NTPC	12,440	8,480	68.20
DVC (Damodar Valley Corporation)	6,750	5,550	82.20
Private sector	14,031	1,500	10.70

Source: CEA, Lehman Brothers research

There are significant orders which are going to be awarded soon (expected in fiscal 084Q and fiscal 091Q). The table below gives a list of those projects which we expect will be ordered soon.

Figure 9: Projects which we expect to be ordered soon

Plant name	Sector	Capacity (MW)	Type
Nabinagar	Central	1,000	Coal
North Karanpura	Central	1,320	Coal
Bokaro replacement	Central	500	Coal
Tripura Gas	Private	750	GAS/LNG
Talwandi Sab	State	1,500	Coal
Kalsindh TPS	State	1,000	Coal
Obra REP	State	1,000	Coal
Koradi REP and other	State	585	Coal
Koradi extn.	State	1,000	Coal
Chandrapur	State	500	Coal
Malwa	State	1,000	Coal
Satpura extn.	State	500	Coal
Krishnapatnam	State	1,600	Coal
North Chennai Extn.	State	500	Coal
Mettur extn.	State	500	Coal
Tuticorin JV	State	500	Coal
Bara	Private	1,000	Coal

Source: CEA, Lehman Brothers research

As can be seen, most of these projects are being developed under the central or state sector which, in turn, means that BHEL should be able to get most of these orders. Assuming that BHEL receives 70% of these orders from central and state sectors, we expect the company can get further orders of 9,700 MW over the next six months. We expect this expected to translate into an order intake of INR231,000 million (assuming INR24 million per MW realization) over the next six months.

Supercritical orders – We expect tie-up with TNEB to lead to first set of orders

The company has tied up with Alstom SA (ALO FP, 1-OW) of France for supercritical boiler technology. The technology transfer agreement with Alstom is contingent on BHEL getting bulk orders for this technology. BHEL has been trying to get negotiated bulk orders based on supercritical technology from NTPC (NATP IN, 1-OW) but pricing of these orders has not been agreed upon. BHEL has now entered into an agreement with Tamil Nadu Electricity Board (TNEB), wherein BHEL would take an equity stake in supercritical power projects, with the equipment supplied by BHEL. The company is also in talks with other SEBs for similar arrangements. In our view, these orders if placed to BHEL, should lead to technology transfer from Alstom, as it is likely to satisfy the bulk order requirement for the technology transfer.

But competition will likely become far stiffer

According to the Twelfth Five Year Plan's project shelf (shelf is a list of probable projects which can be undertaken and is declared by the CEA), 46% of thermal power projects are likely to come up on supercritical technology. This figure includes the ultra mega power projects (UMPPs) which will be awarded on tariff-based bidding. The companies in the fray for supercritical orders in India are – BHEL, L&T-Mitsubishi JV and Chinese equipment companies namely Dongfang Electrical Machinery and Shanghai Electric Company.

Contrary to sub-critical projects in the earlier plans when there was little or no competition for BHEL, there is significant competition for supercritical orders in the Twelfth Five Year Plan.

Twelfth Five Year Plan is expected to be a challenge for BHEL

We expect order inflows to slow down in 2HFY09E and in FY10E, as ordering for the Eleventh Five Year Plan is likely to be completed, and ordering for the Twelfth Five Year Plan is expected to start from FY11. We expect the Twefth Five Year Plan to be a big challenge for BHEL. So far, BHEL has been receiving most of its orders from the central or state sector where there has not been much competition for orders and BHEL has been able to set its prices.

However, the Twelfth Five Year Plan envisages much wider particiaption from the private sector. Of the total capacity shelf of 167, 476 MW (including seven UMPPs), the private sector is expected to set up nearly 40% of the total capacity, as compared with 14% in the Eleventh Five Year Plan. BHEL, so far, has had a very dismal record in getting orders from the private sector, accounting for only 10.7% of private sector projects for the Eleventh Five Year Plan. The main reasons for the low market share in private sector projects are the high prices quoted by BHEL and execution delays, in our view.

The following two scenarios can play out for BHEL in the Twefth Five Year Plan, in our view:

- BHEL concentrates on state and central sector projects and gets only a few private sector projects. Assuming that BHEL receives all the state and central projects, it can get a market share of around 60% or 58,000 MW in coal-based plants, which is less than its current share.

- BHEL lowers its prices and competes with other players. This is likely to lead to a drop in realisations per MW and, which in turn, can affect margin negatively.

New growth areas – Too early to ascribe any value

BHEL's management has indicated that it aims to enter the oil rig manufacturing business. BHEL had supplied rigs to ONGC (ONGC IN, 1-OW) in the past.

Project execution has to improve, in our view

The Ministry of Power has laid the blame of execution delays in the Tenth Five Year Plan on BHEL, while BHEL on its part has blamed the utilities for delays. While we think it is somewhere in between, BHEL has been stretched because of lack of capacity and manpower.

The order book will test BHEL's execution capability

BHEL has expanded its capacity to 10,000 MW and is expected to have 15,000 MW capacity by December 2009. While this should help improve its execution capability, it has to be appreciated that capacity expansion is not likely to lead to a reduction in cycle time.

In our view, BHEL will face the following challenges in delivering projects on time:

- Availability of man power - BHEL has gone on record saying that it needs around 20,000 people over the next four-five years to ramp up. It remains to be seen how such a huge requirement will be fulfilled, given the current manpower shortage across the industries.

- Vendor development - BHEL depends on its vendors for the supply of several key items. In order to adhere to its project time lines, BHEL will have to convince its vendors to make investments to develop additional facilities.

- BOP items such as ash handling systems, pumps, coal handling plants etc are handled by outside agencies. According to the CEA, in many cases, these companies are quite small and in most cases have not ramped up to cater to BHEL's huge order book.

Regulatory changes in the power sector – Impact on BHEL

There have been various regulatory changes since the inception of the Electricity Act of 2003 in the Indian power sector. The basic emphasis has been to increase competition in this sector and attract more private players. Some of these changes have the potential to affect BHEL. We have analyzed these regulatory changes and their possible impact on BHEL.

Amendment in purchase preference policy for public sector enterprises – More competition

Earlier there was a purchase preference policy for BHEL which stated that in the case of competitive bidding for another CPSU project, BHEL will be awarded the project even if its quote is 10% higher than the lowest bidder. This policy was an impediment for private players to enter the Indian equipment market, as it clearly gave an advantage to BHEL. The purchase preference policy has been extended to 2008 in a cabinet meeting held in June 2005. However, the cabinet stipulated that the size of the contracts for which preference policy would apply should not exceed INR1 billion.

The cabinet's directive means that BHEL's competitive edge is lost, as most of the power plants' main plant orders exceed INR1 billion. Now, private sector players can be on an equal footing with BHEL, which is likely to encourage larger private participation in the sector.

New tariff policy – Lower margins for BHEL

The tariff policy was amended to foster competition in the sector. The main provision of the policy is to promote tariff-based bidding for power projects.

The policy clearly states: *"All future requirement of power should be procured competitively by distribution licensees, except in cases of expansion of existing projects or where there is a state-controlled/owned company as an identified developer and where regulators will need to resort to tariff determination based on norms, provided that the expansion of generating capacity by private developers for this purpose would be restricted to a one-time addition of not more than 50% of the existing capacity. Even for public sector projects, the tariff of all new generation and transmission projects should be decided on the basis of competitive bidding after a period of five years or when the Regulatory Commission is satisfied that the situation is ripe to introduce such competition."*

Currently, for a central sector generator, the tariff is determined by the Central Electricity Regulatory Commission (CERC), which assures a 14% guaranteed post-tax return on equity to the developer while all other costs are a pass through in tariff. We believe this method creates higher costs in the system, as the generator has no incentive to optimize costs, which, in turn, means that power equipment manufacturer can earn good margins. Once the tariff policy is implemented, pressure is expected on generating companies to optimize costs. This means lower margins for equipment manufacturers like BHEL, in our view.

MPPs - Lower prices for BHEL

As per the new national electricity policy, 15% of the new capacity would be sold outside the long-term power purchase agreement (PPA). Power plants so set up are known as merchant power plants (MPPs). Unlike traditional utilities, MPPs compete for customers and absorb full market risk. However, there are no guarantees that they would have a minimum offtake of their output. They must respond to market needs. Typically, the risk of an MPP is carried on the promoter's balance sheet.

MPPs will need to keep their project cost at minimum, which in turn, will mean that power equipment prices will become much more competitive in India.

We expect competition to increase

India's ambitious plans for power capacity additions of 79 giga watts (GW) in the Eleventh Five Year Plan and more than 100 GW in the Twelfth Five Year Plan have created a big opportunity for power equipment manufacturers. Apart from China which is expected to order 126 GW of equipment over the next three years, no other country represents a similar opportunity for power equipment manufacturers (Please see Appendix 1 for details of worldwide orders). The sector has been a BHEL monopoly but we believe competition will increase because of this opportunity.

BHEL has had a virtual monopoly in the Indian power equipment market

For the past five decades, BHEL has had a virtual monopoly in India's power equipment market largely because of:

(1) The sector has been dominated by central and state government-owned utilities which have preferred BHEL over private players, and

(2) Size of power capacity additions in India has not been too large to attract global players.

But increased visibility has attracted other players

The large potential and increased visibility of the Indian power sector has attracted many different players. Some of the companies looking to enter the Indian market are L&T, Dongfang Electrical Machinery Company of China and Shanghai Electrical Equipments Company of China. L&T has formed a JV with Mitsubishi Heavy Industries (MHI JP, not rated). The joint venture (JV) between Mitsubishi and L&T can draw on the experience of Mitsubishi and, hence, it is only a matter of time before NTPC grants permission to the JVs to bid for its projects. Our checks with government officials also suggest the same.

Recently, another Indian company Thermax (TMX IN, not rated) also announced its tie-up with Babcock and Wilcox to manufacture sub-critical boilers.

Chinese companies are the biggest threat to BHEL

China has around 90,000 MW of power plant equipment production capacity. It is adding large power capacity every year and, hence, at present, these companies do not need to target India very aggressively. But once the additions in China slow down, we think these companies will definitely look to enter India. Our industry checks suggest that Chinese equipment is at least 10%-15% cheaper than that manufactured by BHEL. This would necessitate a price reduction from BHEL.

IPPs have favored Chinese equipment

Independent power producers (IPPs) such as Reliance Energy (REL IN, 2-EW) and Lanco Infratech (LANCI IN, not rated) have favored Chinese equipment manufacturers due to the following reasons:

- Lower capital costs.
- Faster and timely delivery.

Doubts on quality of Chinese equipments are misplaced, in our view

There have been concerns that the quality of Chinese equipment is not as good as that of BHEL's. The reason given for this is the low plant load factor (PLF) of Chinese power plants.

The following table shows the performance of Chinese power plants over the years.

Figure 10: PLF of Chinese power plants

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Power demand and supply	Balance	Balance	Oversupply	Oversupply	Balance	Balance	Shortage	Shortage	Shortage	Balance	Balance	Balance
Thermal PLF (%)	58.40	54.90	53.90	55.30	55.90	60.20	65.80	68.40	67.00	64.30	61.90	61.50
Hydro PLF (%)	36.30	37.90	36.50	37.20	35.90	37.50	37.00	38.50	41.80	39.20	40.20	40.50
Overall PLF (%)	54.40	51.40	50.10	51.60	52.40	55.50	59.90	62.30	61.90	59.60	57.30	56.90

Source: Lehman Brothers research

We assess that the low performance of thermal sets is due to the following reasons:

- There was no extra requirement of power from 2006, as the power market is balanced in demand and supply.
- In China, thermal sets are used for peak load also (unlike India), and hence, overall PLF is bound to be low. Please note that at non-peak hours, these plants operate at part load conditions, and
- There is more than 100 GW (out of a total capacity of 719 GW) of below 135 MW inefficient capacities, which China is expected to replace over the next few years. These capacities run on very low PLFs, taking the overall PLF down.

We do not expect stiff competition from Chinese players for two years

Our interactions with Shanghai Electric, Dong Fang and industry personnel suggest that Chinese companies will not be aggressive in India for the next couple of years because of the following reasons:

- The significant market opportunity in China has resulted in an order book of two-three years for Chinese equipment suppliers. We expect new order flow to slow down from CY09, as we think the major expansion drive of Chinese utilities will slow by then.

Figure 11: Order pattern of Chinese power plants

(GW)	CY97	CY98	CY99	CY00	CY01	CY02	CY03	CY04	CY05	CY06	CY07	CY08E	CY09E	CY10E
Commissioning	19	22	26	21	19	18	35	49	68	114	95	80	60	50
Fresh orders	30	18	16	10	38	34	157	90	51	47	55	42	42	42
Thermal orders	30	18	16	10	31	26	142	53	39	33	34	19	21	22

Source: Lehman Brothers estimates

- Chinese companies have standardized their production lines for 300 MW and 600 MW turbines, while Indian demand (mainly by NTPC) is for 500 MW. It is important to note here that CEA and the power ministry have now decided to allow 300 MW and 600 MW sets to be used by SEBs and, hence, in the coming years we can see competition for BHEL in SEBs and in NTPC orders from Chinese players.

Chinese companies mainly follow American standards of manufacturing; however, NTPC follows European standards; hence, unless there is a significant order visibility, it is economically and technologically unfeasible for Chinese companies to change their production methods.

Financials

Strong earnings growth since FY05

Earnings of BHEL have grown rapidly over the last couple of years, backed by high order inflows and utilization of idle capacity. Key costs such as employee costs grew by 20%, while revenue increased by 35%, thereby providing leverage, which resulted in margin improving from 13.4% in FY05 to 18.6% in FY07. The rise in margin was also due to strong cost management and reduction of major non-operational costs.

Figure 12: Other expenditure as % of sales

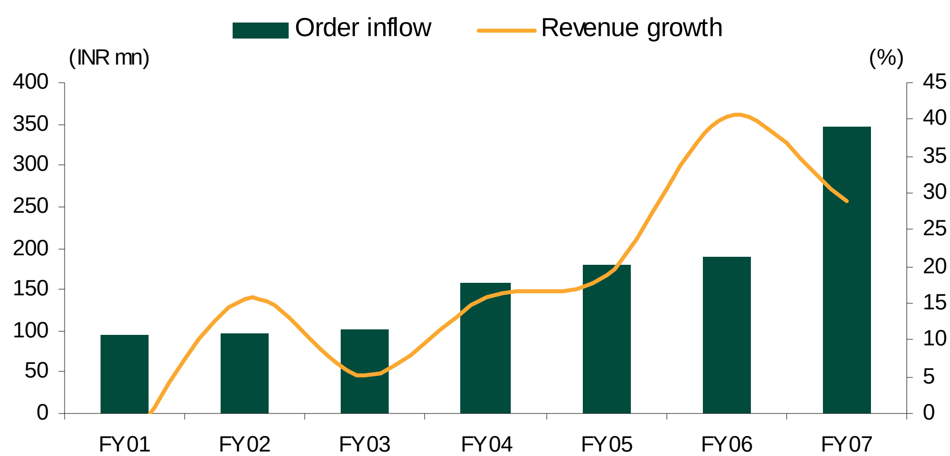
	FY01	FY02	FY03	FY04	FY05	FY06	FY07
Other expenditure, as % of sales	8.70	8.10	14.30	13.50	12.20	8.80	8.60

Source: Company data, Lehman Brothers research

Large order intake led to strong revenue growth

BHEL's order inflows have surged over the last three years because of the Government of India's emphasis on improving the power deficit scenario in India.

Figure 13: Revenue growth and order inflow

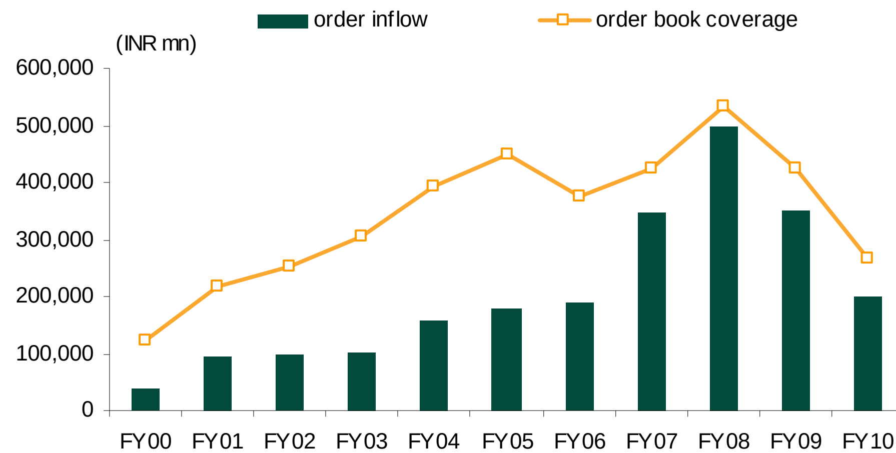


Source: Company data, Lehman Brothers estimates

Order book expected to come down

We expect BHEL to end FY08 with a very strong order book as INR271,000 million of orders are expected to be in the pipeline, and the current order book is INR780,000 million. However, in FY09E and in FY10E, the order book to revenue ratio will decrease, as most of the orders for the Eleventh Five Year Plan capacity additions are likely to be placed by that time. We expect ordering activity to pick up again in FY11 and FY12, but we believe that it will not be as large so as to sustain the high order book coverage ratio of FY07 and FY08. Please see the following graph for our projection of order book coverage ratio.

Figure 14: Order book coverage ratio and order inflow (INR mn)



Source: Company data, Lehman Brothers estimates

But increased capacity should help improve execution

We expect BHEL to have an installed manufacturing capacity of 10,000 MW by the end of FY08, and 15,000 MW by the end of FY10. This should help the company settle some of the execution delays and lead to strong revenue growth in FY09 and FY10. The company plans to take its capacity up to 20,000 MW by the end of FY12.

Expected to lead to high revenue and profit growth over FY08E-11E

We are building an EPS CAGR of 30% over FY08E-FY11E, driven by strong revenue CAGR of 27% over FY08E-11E and margin expansion because of operating leverage. We are building core EBITDA margin to go higher from 18.6% in FY07 to 22.5% in FY11.

Figure 15: Key estimates

	FY08E	FY09E	FY10E
Net sales (INR mn)	210,297.9	283,902.1	369,072.8
Growth (%)	22	35	30
EBDITA (INR mn)	42,061.1	61,194.6	83,198.2
EBDITA margin (%)	20.00	21.60	22.5

Source: Lehman Brothers estimates

Staff costs likely to go up

BHEL's staff costs are expected to rise at a much faster pace in the coming years as shown in the table below. BHEL is providing only INR3.2 billion annually as provisions for wage revisions. However, going by past revisions and interaction with the company's management, wage rise can be much higher to the tune of 50%. If we go by past figures, in FY02 staff costs went up by as much as 30% after wage revision. By our estimates, staff costs should increase at a CAGR of 20% over the next three years. We believe that our staff cost calculation is conservative and actual costs in FY10 or FY11 can be much higher, as provisions are quite small as compared with the probable wage hike.

Figure 16: Employee cost

(INR mn)	FY06	FY07	FY08E	FY09E	FY10E
Base wage cost	17,985	20,890	25,067	30,081	36,097
One-time actuarial settlement		1,000	0	0	0
Provisions for wage revision		800	3,200	3,200	3,200
DA paid in 4Q	800	1,000	1,100	1,210	1,331
Overall costs	18,785	23,690	29,367	34,491	40,628
% rise in base wage cost		16.10	20	20	20

Source: Company data, Lehman Brothers estimates

For example, as a result of the revision, if wage costs rise by 50% over FY07 base wage cost, then BHEL can take a one-time hit of around INR14 billion in FY10. Please note that our calculations of staff cost in FY10 do not account for any one-time hit due to arrear payments.

Industry segment to grow steadily

We expect BHEL's industry segment, under which it classifies revenues from its power T&D segment to continue to do well. This segment had a share of 28% in total revenues in FY07. We expect this share to come down to 25%. There is an opportunity of USD45 billion in the Indian T&D equipment market (*Refer to our 'India Electrical Equipment' report dated November 29, 2007*), which should ensure steady growth for this sector.

We believe our estimates factor in the best case scenario

We believe that our EPS estimates factor in the best case because of the following reasons:

- As per our estimates, the company will need to make 9,700 MW of equipment in FY09 and 12,600 MW in FY10. The company will have a capacity of 15,000 MW only in the last quarter of FY10E and, hence, we think the assumption of 12,600 MW is aggressive on our part.

- Our assumption for FY10E margin is 22.5% which is an expansion of 3.9% from the FY08 level. We think it is aggressive because we have assumed basic wage costs to increase at a CAGR of only 20% during this period, which is conservative given BHEL's admission that it will need to hire 20,000 people over the next five years to support the high growth rates. This is a 50% increase from the current employee base of 42,000.

- We have not built in any execution delays for BHEL and have assumed that it will be able to utilize its capacity fully. It is worth mentioning that the Power Ministry of India has been a severe critic of BHEL's capability to execute projects on time. We believe our assumption that BHEL will be able to deliver more than its capacity factors in any potential upside.

Operating margins to decline in the longer term

We expect margins to decline in the longer term because of high competition and more cost consciousness on the part of power project developers. Besides, increasing private sector participation will likely make power equipment companies like BHEL lose some of their healthy margins. Thus, we are building in a decline in operating margins from FY11.

Financial statements and valuation ratios

Figure 17: Income statement

(INR mn)	FY06	FY07	FY08E	FY09E	FY10E
Net sales	133,740	172,375	210,298	283,902	369,073
Operating expenses	-110,652	-140,376	-168,237	-222,707	-285,875
Operating profit	23,088	31,999	42,061	61,195	83,198
Other income	5,566	8,236	8,486	9,786	11,286
EBITDA	28,655	40,235	50,547	70,981	94,484
Depreciation	-2,459	-2,730	-3,286	-4,544	-5,534
EBIT	26,196	37,505	47,261	66,436	88,950
Interest paid	-588	-433	-433	-433	-433
Pre-tax profit	25,643	37,072	46,827	66,003	88,517
Tax (current + deferred)	-8,852	-13,086	-16,390	-23,101	-30,981
Profit after tax	16,791	23,986	30,438	42,902	57,536

Source: Company data, Lehman Brothers research

Figure 18: Balance sheet

(INR mn)	FY06	FY07	FY08E	FY09E	FY10E
Current assets	163,308	203,911	233,404	303,903	393,818
Investments	83	90	90	90	90
Net fixed assets	11,609	12,008	28,722	39,178	48,644
Other non-current assets	6,867	6,737	6,737	6,737	6,737
Total assets	181,866	222,747	268,952	349,908	449,289
Current liabilities	103,200	126,218	149,321	197,714	253,426
Total Debt	5,582	5,370	5,370	5,370	5,370
Total liabilities	108,783	131,588	154,691	203,084	258,796
Share capital	2,448	2,448	2,448	2,448	2,448
Reserves & surplus	70,635	88,710	111,813	144,377	188,046
Shareholders' funds	73,083	91,158	114,260	146,825	190,493
Total equity & liabilities	181,866	222,746	268,951	349,908	449,289

Source: Company data, Lehman Brothers research

Figure 19: Cash flow statement

(INR mn)	FY06	FY07	FY08E	FY09E	FY10E
Pre-tax profit	25,643	37,072	46,827	66,003	88,517
Depreciation	2,459	2,730	3,286	4,544	5,534
Tax paid	-8,852	-13,086	-16,390	-23,101	-30,981
Chg in working capital	-1,576	-810	-5,746	-8,614	-13,370
Other operating activities	217	130	0	0	0
Cash flow from operations (a)	17,892	26,035	27,979	38,832	49,700
Capital expenditure	-2,756	-3,129	-20,000	-15,000	-15,000
Cash flow from investing (b)	-2,749	-3,136	-20,000	-15,000	-15,000
Free cash flow (a+b)	15,142	22,899	7,979	23,832	34,700
Debt raised/(repaid)	213	-213	0	0	0
Dividend (incl. tax)	-4,047	-5,781	-7,336	-10,339	-13,866
Cash flow from financing (c)	-5,581	-6,123	-7,336	-10,339	-13,866
Net chg in cash (a+b+c)	9,561	16,776	643	13,493	20,834

Source: Company data, Lehman Brothers research

Figure 20: Key ratios

	FY06	FY07	FY08E	FY09E	FY10E
Adjusted EPS (INR)	34.3	49.0	62.2	87.6	117.5
Adjusted EPS growth (%)	72.1	43.1	26.9	41.0	34.1
EBITDA growth (%)	50.7	40.4	25.6	40.4	33.1
Core EBITDA margin (%)	17.3	18.6	20.0	21.6	22.5
Pre-tax margin (%)	19.2	21.5	22.3	23.2	24.0
ROE (%)	25.1	29.2	29.6	32.9	34.1
ROCE (%)	36.3	42.8	43.7	48.9	51.1
Net debt/Equity (%)	-48.9	-57.9	-46.7	-45.6	-46.0

Source: Company data, Lehman Brothers research

Figure 21: Valuations

	FY06	FY07	FY08E	FY09E	FY10E
PER (x)	66.7	46.6	36.7	26.0	19.4
PCE (x)	58.1	41.8	33.1	23.5	17.7
Price/Book (x)	15.3	12.3	9.8	7.6	5.9
Yield (%)	0.3	0.5	0.7	0.9	1.1
EV/Net sales (x)	8.1	6.2	5.1	3.7	2.8
EV/EBITDA	27.0	21.4	15.1	11.1	27.0

Source: Company data, Lehman Brothers research

Company background

BHEL is India's leading manufacturer of power equipment, having commissioned 65% of the power plants currently operational in the country. The company has four main divisions: (1) Production Units (2) Industrial Sector (3) Power Sector, and (4) Industrial Systems Group.

BHEL's main manufacturing units are listed in Figure 22. In addition to these six major units, it has eight other units that specialize in repairs & maintenance and production of power plant auxiliaries. The company's technology tie-ups with international players are detailed in Figure 23.

Figure 22: Production units of BHEL

Unit	Equipment manufactured
Trichy	Boilers and Valves
Hyderabad	Turbines
Hardwar	Turbines and motors
Bhopal	Transformers, turbines and motors
Jhanshi	Industrial locomotives and motors
Ranipet	Boiler Auxiliaries

Source: Company data, Lehman Brothers research

Figure 23: Technical collaborations of BHEL

Company	Supplies technical know-how for
Power Machines, KWU	Steam turbines
GE, Siemens	Gas turbines
Alstom	Super-critical boilers

Source: Company data, Lehman Brothers research

Power Sector

Power Sector is BHEL's erection and commissioning agency, and has four divisions, one each for the Eastern, Western, Southern, and Northern regions. These divisions are headquartered in Kolkata, Mumbai, Chennai, and Noida, respectively.

Power Sector sources equipment from the company's production units, maintains the supply chain according to the production schedule, sub-contracts work and equipment as necessary, and is responsible for commissioning projects. It takes critical inputs in laying out plants and sourcing of non-BHEL equipment from Project Engineering Management, Delhi (PEM), which is an important coordination centre for BHEL.

Industrial Sector

This division was formed to address the needs of industrial customers. It sources equipment from various production units. The Industrial Sector division's commercial wing, Regional Operational Division (ROD), has offices in important cities. ROD identifies industrial requirements and bids in the tendering process on behalf of the Industrial Sector division. In FY05, the Industrial Sector division accounted for 25% of BHEL's revenues. We expect this proportion to decline to 20% in the coming years.

Figure 24: Share of power and industrial segments in revenue

(INR mn)	FY04	FY05	FY06	FY07
Power	60,094	75,827	81,421	103,189
Industry	29,806	34,231	31,111	41,022
Share of industry segment (%)	33.20	31.10	27.60	28.40

Source: Company data, Lehman Brothers research

Appendix 1:

Worldwide power equipment demand

Figure 25: Worldwide power equipment orders (GW)

	2006	2007	2008E	2009E	2010E
Gas turbines (total world)	38	46	48	48	48
NAFTA	3	4	15	15	15
Europe	11	10	9	9	9
Middle East / Africa	9	18	10	10	10
Latin America	4	4	4	4	4
Asia	11	10	10	10	10
of which China	*3*	*2*	*4*	*4*	*4*
Rest of Asia	*8*	*8*	*6*	*6*	*6*
Steam turbines (total world)	49	76	55	58	53
NAFTA	2	6	9	12	12
Europe	3	7	8	6	5
Middle East/ Africa	2	4	2	2	2
Latin America	4	8	6	6	1
Asia	38	51	30	32	33
of which China	*30*	*32*	*15*	*17*	*18*
Rest of Asia	*8*	*19*	*15*	*15*	*15*
Hydro (total world)	26	28	26	24	25
NAFTA	1	0	1	1	2
Europe	2	2	1	2	2
Latin America	3	4	4	2	3
Asia	20	22	20	19	18
of which China	*13*	*20*	*20*	*15*	*14*
Rest of Asia	*7*	*2*	*0*	*4*	*4*
Wind (total world)	20	21	20	19	19
NAFTA	9	7	5	3	3
Europe	8	11	12	12	12
Asia	3	3	3	4	4
of which China	*1*	*1*	*1*	*2*	*2*
Rest of Asia	*2*	*2*	*2*	*2*	*2*
Nuclear (Total world)	0	0	6	12	14
NAFTA	0	0	0	2	2
Europe	0	0	2	3	4
Asia	0	0	4	7	8
of which China	*0*	*0*	*2*	*4*	*4*
Rest of Asia	*0*	*0*	*2*	*3*	*4*
Total market size worldwide	133	171	155	161	159
NAFTA	15	17	30	33	34
Europe	24	30	32	32	32
Middle East/ Africa	11	22	12	12	12
Latin America	11	16	14	12	8
Asia	72	86	67	72	73
of which China	*47*	*55*	*42*	*42*	*42*
Rest of Asia	*25*	*31*	*25*	*30*	*31*

Source: Lehman Brothers estimates

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Important Disclosures:

Bharat Heavy Electricals Ltd (BHEL) (BHEL.NS)INR 2282.00 (29-Feb-2008) **2-Equal weight / 1-Positive**

Rating and Price Target Chart:

CHART IS NOT APPLICABLE

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Valuation Methodology: We have valued the company by DCF methodology. Our key assumptions are terminal growth rate of 5% and Cost of equity of 12%.

Risks Which May Impede the Achievement of the Price Target: Downside risks: 1) Slippage in capacity additions, 2) Slowdown in power sector investments and 3) Competitive threat from China surfaces earlier than expected

Upside risk: BHEL is able to increase its share in private sector projects

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Below is the list of companies that constitute the sector coverage universe:
ABB India (ABB.NS)
Bharat Electronics (BAJE.NS)
Crompton Greaves (CROM.NS)

Related Stocks	Ticker	Price (29-Feb-2008)	Stock / Sector Rating
ABB India	ABB.NS	INR 1156.20	1-Overweight / 1-Positive
ABB Ltd	ABBN.VX	SFR 26.62	1-Overweight / 2-Neutral
Alstom	ALSO.PA	EUR 140.55	1-Overweight / 2-Neutral
Crompton Greaves	CROM.NS	INR 314.40	1-Overweight / 1-Positive
Cummins Inc.	CMI	US$ 52.81	3-Underweight / 2-Neutral
General Electric	GE	US$ 33.85	1-Overweight / 1-Positive
Jacobs Engineering Group	JEC	US$ 83.70	2-Equal weight / 1-Positive
Oil and Natural Gas Corp	ONGC.BO	INR 1012.35	1-Overweight / 2-Neutral
Reliance Energy	RLEN.BO	INR 1567.75	2-Equal weight / 1-Positive
Schneider Electric	SCHN.PA	EUR 75.72	1-Overweight / 2-Neutral
Siemens AG	SIEGn.DE	EUR 84.60	1-Overweight / 2-Neutral
Suzlon Energy Limited	SUZL.BO	INR 281.30	1-Overweight / 1-Positive

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