

Electrical Machinery

NOVEMBER
2011



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INDIA BRAND EQUITY FOUNDATION
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Contents

- ❖ Advantage India
- ❖ Market overview and trends
- ❖ Growth drivers
- ❖ Success stories: BHEL, L&T
- ❖ Opportunities
- ❖ Useful information

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Advantage India

Growing demand

- Power generation capacity addition of 78,700 MW proposed in the 11th Five Year Plan (2007-12) is translating into a higher demand for electrical machinery

Opportunities

- Planned capacity addition of around 1 lakh MW by 2017 will provide significant opportunities
- Replacement or brownfield expansion could provide significant opportunities as well

2013E

BTG
manufacturing
capacity : 36
GW

Advantage India

Increasing investments

- The sector has witnessed increasing entry of global players through the JV route
- Existing players are planning huge capacity expansion over the next few years

Policy support

- Electrical machinery sector is delicensed; 100 per cent FDI is permitted
- Significant number of SEZs have been approved for the sector

2011

BTG
manufacturing
capacity: 19 GW

Source: Edelweiss estimates, Ministry of Power, Aranca Research

Notes: BTG - Boiler, Turbine & Generator, GW - Giga Watt

E- Estimate, FDI – Foreign Direct Investment, JV – Joint Venture, SEZ – Special Economic Zone

Electrical Machinery

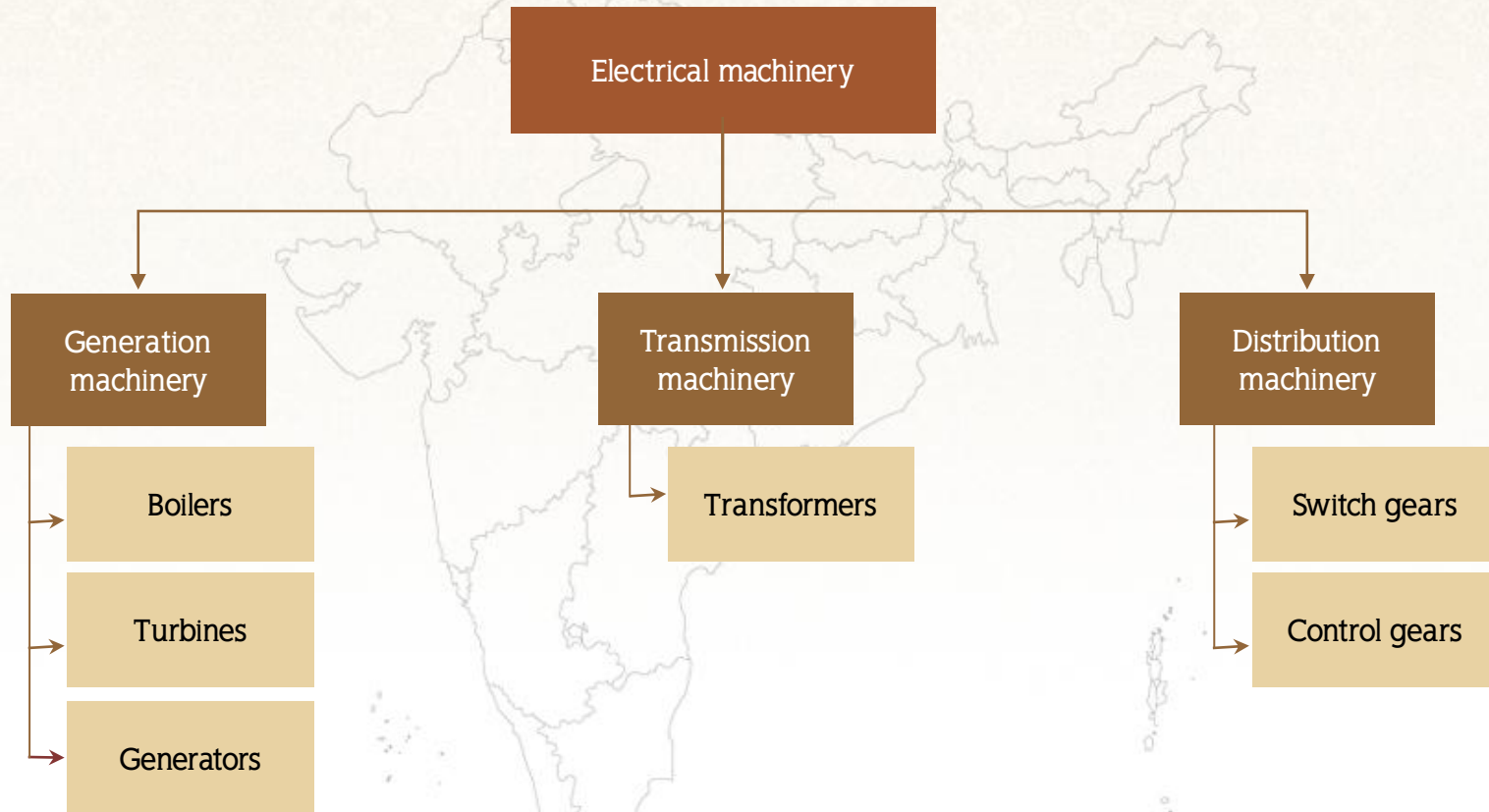
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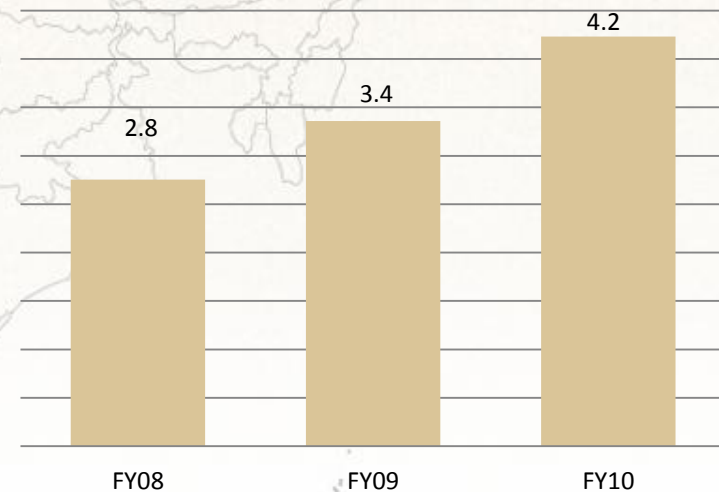
Electrical machinery has three major segments



BTG market is experiencing steady growth in the country ... (1/2)

- The generation equipment segment garnered revenues of USD4.2 billion in FY10
- The market expanded at a CAGR of 23.9 per cent over FY08–10

Market size of generation machinery (USD billion)

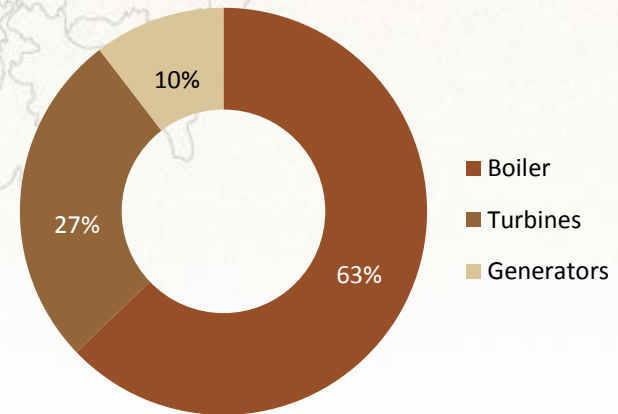


Source: Department of Heavy Industry Annual report 2010-11, Aranca Research

BTG market is experiencing steady growth in the country ... (2/2)

- Boilers is the major segment, accounting for 63 per cent of the total revenues
- Turbines accounts for 27 per cent while generators account for the remaining 10 per cent

Generation machinery market breakup (FY10)



Source: Department of Heavy Industry
Annual report 2010-11, Aranca Research

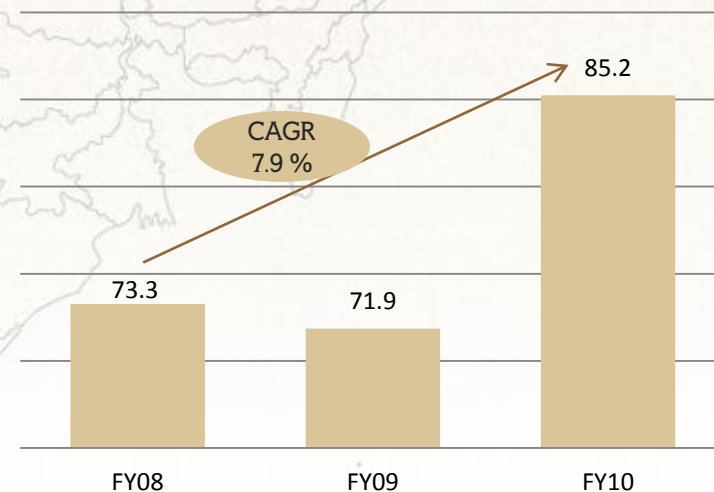
Notes: DHI : Department of Heavy Industries; BTG : Boiler, Turbine & Generator

Other major segments – transmission and distribution machinery ... (1/2)

- Production of transformers increased at a CAGR of 7.9 per cent during FY08-10
- Domestic transformer industry has the capability to manufacture the whole range of power and distribution transformers including transformers used for HVDC transmission upto 500 KV

Notes : HVDC is High Voltage Direct Current

Production of transformers (million KVA)

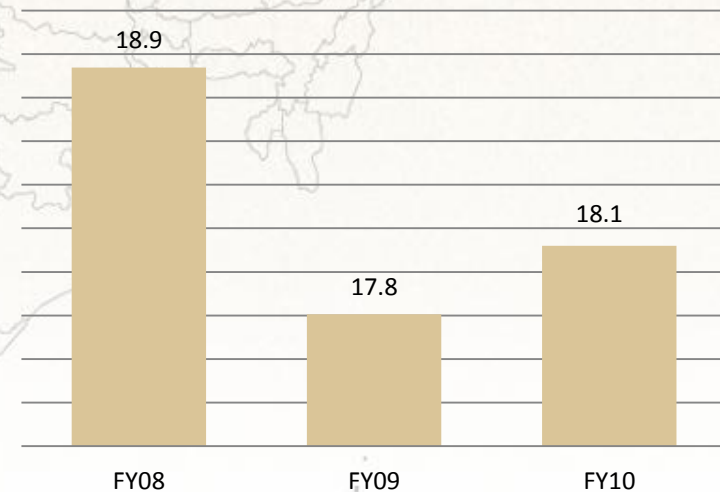


Source: Department of Heavy Industry Annual report 2010-11, Aranca Research

Other major segments – transmission and distribution machinery ... (2/2)

- The switch gear industry in India manufactures entire voltage range from 240 KV to 800 KV
- Significant advances have been made in control gears due to major developments in the field of technology

Production of switch & control gears (million units)



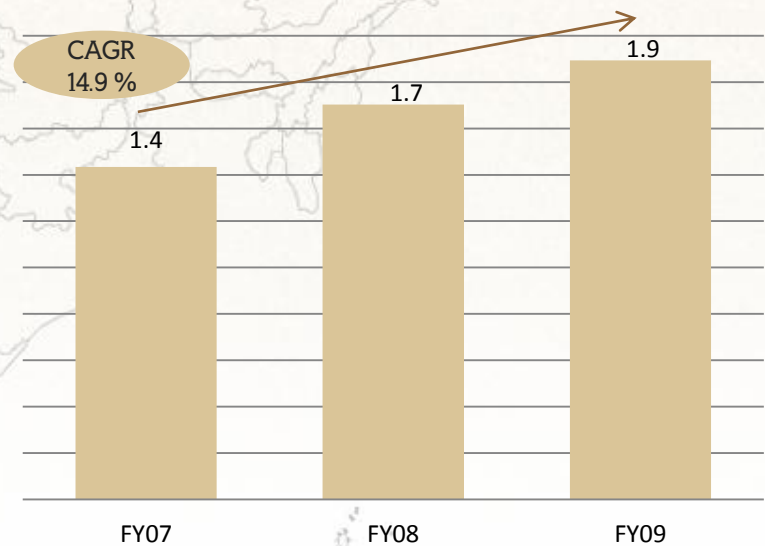
Source: Department of Heavy Industry
Annual report 2010-11, Aranca Research

Electrical machinery exports on a rise ... (1/2)

- Exports of the electrical machinery sector increased at a CAGR of 14.9 per cent to USD1.9 billion from USD1.4 billion during FY07-09
- Transformers and generators were the primary drivers of the increase in exports

Notes: FY09 Figures are till Dec 08

Exports by Electrical Machinery sector (USD billion)

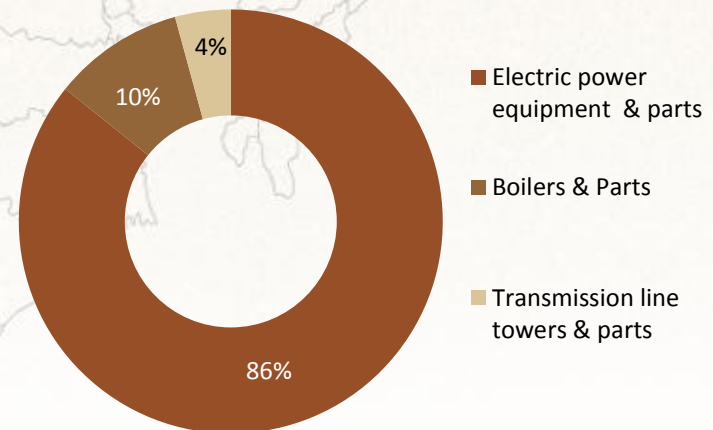


Source: Department of Heavy Industry Annual report 2010-11, Aranca Research

Electrical machinery exports on a rise ... (2/2)

- Exports of electrical machinery stood at USD4 billion in FY10
- Exports of electrical power equipment & parts, valued at USD3.2 billion, constituted the largest share

Exports break-up by segment (FY10)



Source: Engineering Exports Promotion Council (EEPC), India, Aranca Research

Notable trends in the electrical machinery sector

Upgrading technology

- Industry players are upgrading their transmission capacities to the next higher voltage system of 765 kilovolts (KV), and are gearing up to supply transformers and related equipment of this class

Increasing R&D expenditure

- Indian manufacturers are becoming more competitive with respect to their product designs, manufacturing and testing facilities
- Investments in research & development (R&D) in the electrical machinery industry are amongst the largest in India's corporate sector

Diversifying product portfolio

- Increasing competitiveness in the industry and changing consumer demands have led to new versions of products being launched in the market
- Players are entering into strategic alliances and tie-ups with technology suppliers to upgrade capabilities

Adoption of super critical technology

- Government of India is encouraging the adoption of super critical technology for thermal power plants due to its efficiency and reduced emissions
- In the 11th Five Year Plan, the share of super critical sets of total thermal capacity stands at 14 per cent of total planned addition

Source: Department of Heavy Industries Annual Report 2008–09, Aranca Research

Key players

	Company	Revenues (FY10)	Product portfolio
	Bharat Heavy Electricals Ltd	USD6.9 billion	Boilers, turbines, generators, transformers
	Larsen & Toubro	USD9.0 billion	Boilers, turbines, generators
	Siemens India Ltd	USD2.0 billion (As on Sep, 2010)	Turbines, generators, transformers, switch gears, control gears,
	ABB Ltd	USD1.3 billion (As on Dec, 2010)	Transformers, switch gears, control gears
	Crompton Greaves Ltd	USD1.9 billion	Generators, transformers, switch gears,
	Thermax	USD0.7 billion	Boilers
	BGR Energy	USD0.6 billion	Boilers, turbines, generators

Source: Company Annual Reports, Aranca Research

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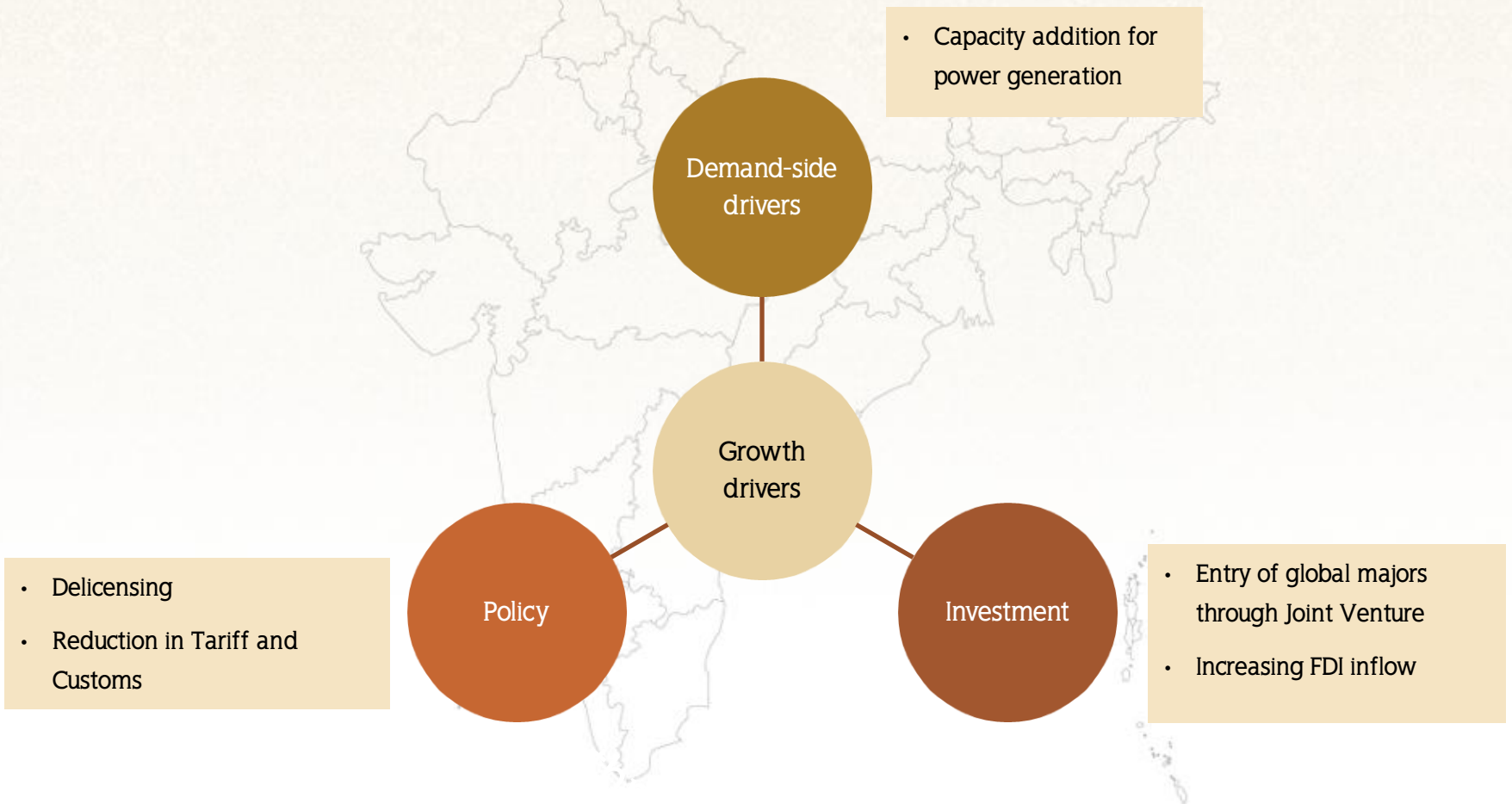
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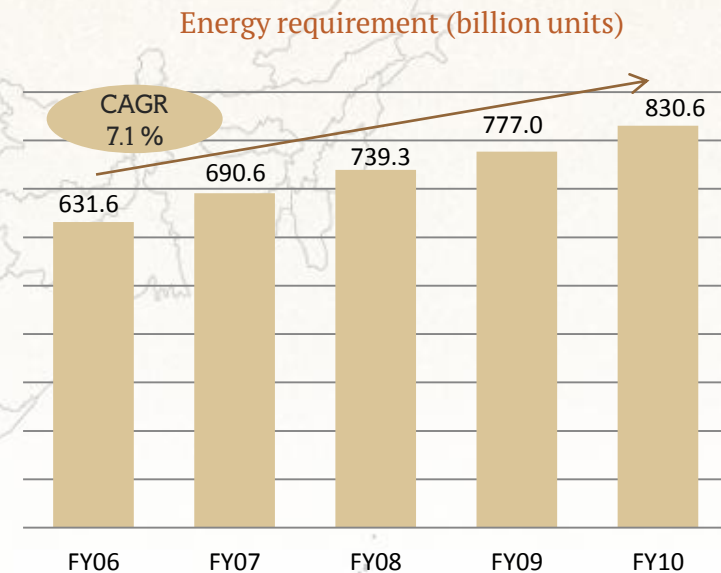
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Growth drivers of electrical machinery sector



Capacity augmentation resulting in increasing demand ... (1/2)

- India's energy requirement increased at a CAGR of 7.1 per cent to 830.6 billion units in FY10 from 631.6 billion units in FY06
- The rising demand for energy has led to increasing capacity addition for power generation

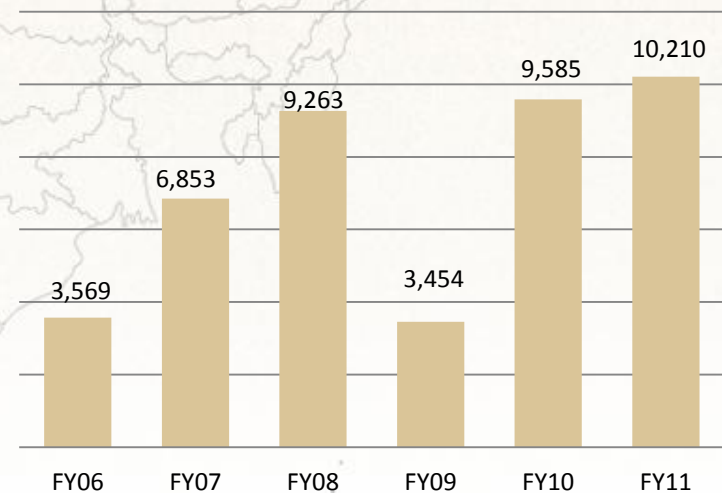


Source: CEA Annual report 2010-11, Aranca Research
CEA: Central Electrical Authority

Capacity augmentation resulting in increasing demand ... (2/2)

- The increasing capacity addition has resulted in rising demand for power generation and transmission equipment
- Capacity addition for power generation has increased to 10,210 MW in FY11

Capacity addition for power generation in MW



Source: Ministry of Power Annual report 2010-11,
Aranca Research

Favourable policies have aided the sector

Delicensing

- The electrical machinery industry has been delicensed; 100 per cent FDI is allowed in the sector
- This facilitated the entry of global majors into the electrical machinery industry in India

Tariffs & custom duties

- Government has removed tariff protection on capital goods
- Government has lowered custom duties on a range of equipments

Initiatives to increase power generation

- The government has an ambitious mission of "Power for all by 2012" and a planned capacity addition of 120 GW in the 12th Five Year Plan
- Through the Accelerated Power Development Reform Programme, the government plans to provide reliable, affordable and quality power

SEZ

- The government has cleared significant number of SEZs for the engineering sector across the country; electrical machinery is a part of the sector
- Delhi Mumbai Industrial Corridor being developed across seven states could boost engineering sector

Source: Ministry of power Annual report 2010-11, Aranca Research
Notes : SEZ - Special Economic Zone, FDI – Foreign Direct Investment

Special Economic Zones (SEZs) will promote exports

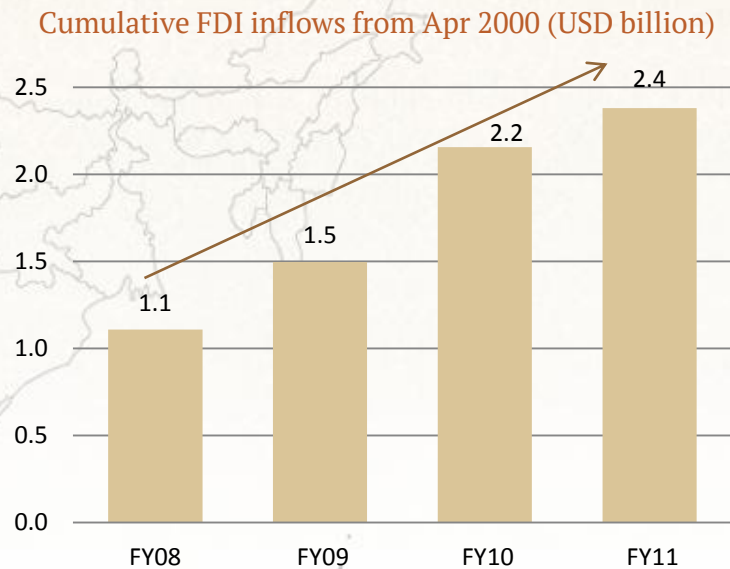
Developer	Location	Product
M/s Essar Hazira SEZ	Hazira, Gujarat	Engineering
Gujarat Industrial Development Corporation Ltd (GIDC)	Gandhinagar, Gujarat	Electronic products
N.G. Realty Pvt Ltd	Ahmedabad, Gujarat	Engineering
E. Complex Pvt Ltd	Amreli, Gujarat	Engineering
Dishman Infrastructure Ltd	Ahmedabad, Gujarat	Engineering
Ansal Properties and Infrastructure Ltd	Sonepat, Haryana	Engineering
Raheja Haryana SEZ Developers Pvt Ltd	Gurgaon, Haryana	Engineering
Ansal Kamdhenu Engineering SEZ Ltd	Sonepat, Haryana	Engineering
Karnataka Industrial Areas Development Board	Shimoga, Karnataka	Engineering
Suzlon Infrastructure Ltd	Mangalore, Karnataka	Port-based for high-tech engineering products
Maharashtra Industrial Development Corporation (MIDC)	Satara, Maharashtra	Engineering
Township Developers India Pvt Ltd	Pune, Maharashtra	Engineering
Vividha Infrastructure Pvt Ltd	Patiala, Punjab	Engineering
New Chennai Township Pvt Ltd	Kanchipuram, Tamil Nadu	Engineering
Perundurai Engineering SEZ by SIPCOT	Erode, Tamil Nadu	Engineering
Uttar Pradesh State Industrial Development Corporation (UPSIDC)	Kanpur, Uttar Pradesh	Engineering

Source: SEZ India, Aranca Research

Foreign investments flowing in; rise in M&A activity ... (1/2)

- Cumulative FDI inflows over FY00-11 stood at USD2.4 billion
- The figure more than doubled over FY08-11

Notes: FDI – Foreign Direct Investment; FY08: Cumulative from April 2000 to March 2008 and so on.



Source: Department of Industrial Policy & Promotion, Aranca Research

Foreign investments flowing in; rise in M&A activity ... (2/2)

- Legrand has acquired the switch gear business of Indo Asian Fusegear at a price of USD127.6 million

M&A deals

Acquirer	Target	Type	Year
Havells India	Standard Electrical Ltd	Merger	2011
ABB India Ltd	ABS Global Industries & Services Ltd	Acquisition	2011
Crompton Greaves Ltd	Brook Crompton Greaves Ltd	Merger	2010
Legrand	Indo Asian Fusegear Ltd-switch gear business	Acquisition	2010

Source: Grant Thornton, Aranca Research

Bright prospects lure global majors

Global majors entering through JV		
Joint Venture	Indian Partner	Foreign Partner
L&T - MHI	51%	49%
BGR-Hitachi	70/74%	30/26%
Thermax -Babcock	51%	49%
Bharat Forge -Alstom	51%	49%
Toshiba - JSW	25%	75%
GB Engineering -Ansaldo	15%	85%

Boiler capacities planned through JV	
Companies in JV	Capacity (MW)
L&T – MHI	4000
BGR – Hitachi	4000
Thermax- Babcock	3000
Bharat Forge - Alstom	2000

Turbine capacities planned through JV	
Companies in JV	Capacity (MW)
Toshiba – JSW	5000
GB Engineering Ansaldo	3000
L&T – MHI	4000
BGR – Hitachi	4000

Source: Edelweiss Research, Aranca Research

Notes: JV – Joint Venture, MHI – Mitsubishi Heavy Industries

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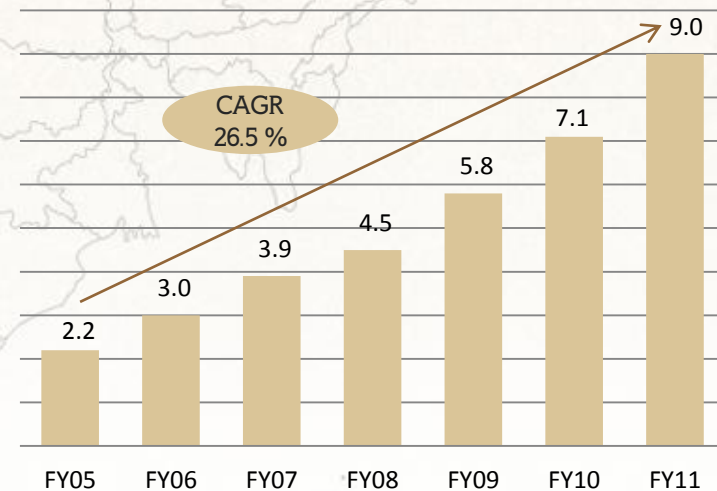
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BHEL – Mainstay of the electrical machinery industry(1/2)

Salient features

- A USD9.6 billion enterprise with 'Navratna' status
- One of the major integrated power plant equipment (IPPE) manufacturers in the world
- Profit-making company since 1971–72
- Installed base of more than 115,000 MW
- 15 manufacturing units, two subsidiaries and seven joint ventures
- Turnover quadrupled in six years, registering a 26.5 per cent year-on-year growth over FY05–11

Net sales (USD billion)

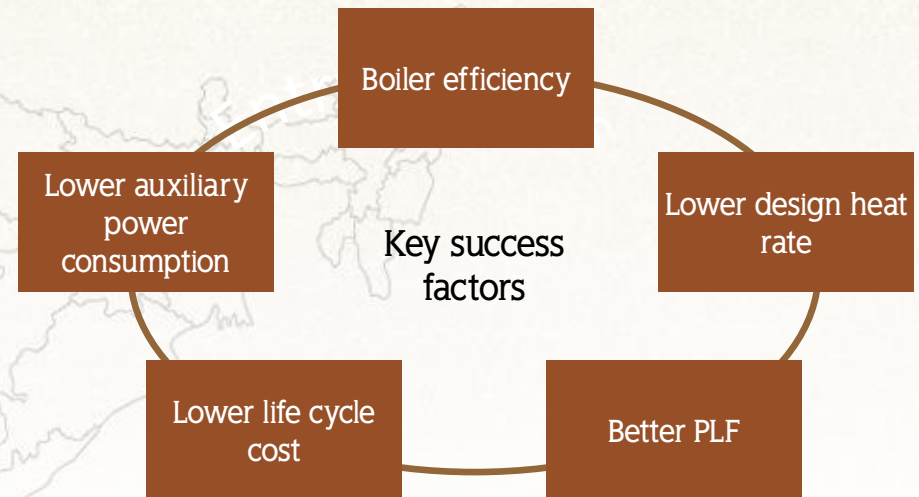


Source: Company reports, Aranca Research

BHEL – Mainstay of the electrical machinery industry ... (2/2)

Recent Awards and Recognitions

- Golden Peacock Award 2011 for Occupational Health and Safety (2011)
- Intellectual Property Award from the Government of India (2011)
- Essar Steel Infrastructure Excellence Award (2011)
- DSIJ Gentle Giant Award from the Government of India (2011)
- CII-Thompson Reuters Innovation Award (2010)



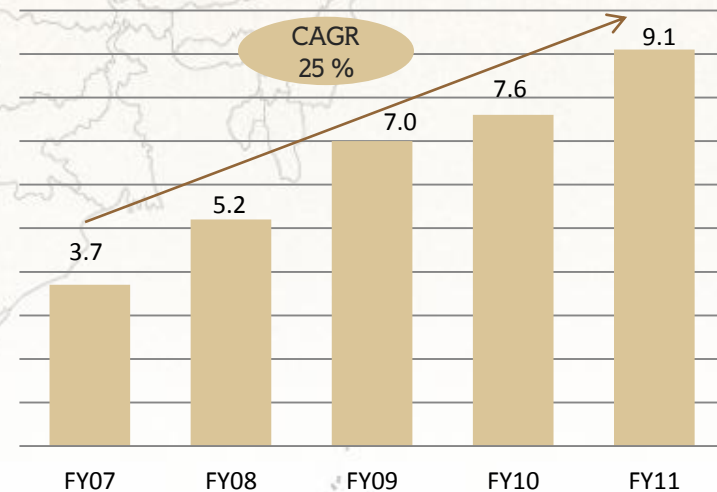
Notes : PLF - Plant Load Factor, 'Navratna' is one of the designations given to public sector enterprises based on their profitability and there by granted certain autonomy

L&T – One of India's leading players in the sector ... (1/2)

Salient features

- India's largest E&C company, with interests in projects, infrastructure development, manufacturing, IT & financial services
- Enjoys AAA rating with stable outlook from CRISIL and LAAA from ICRA
- Turnover increased by more than two-fold in four years, registering a 25 per cent year-on-year rise over FY07–11

Net sales (USD billion)

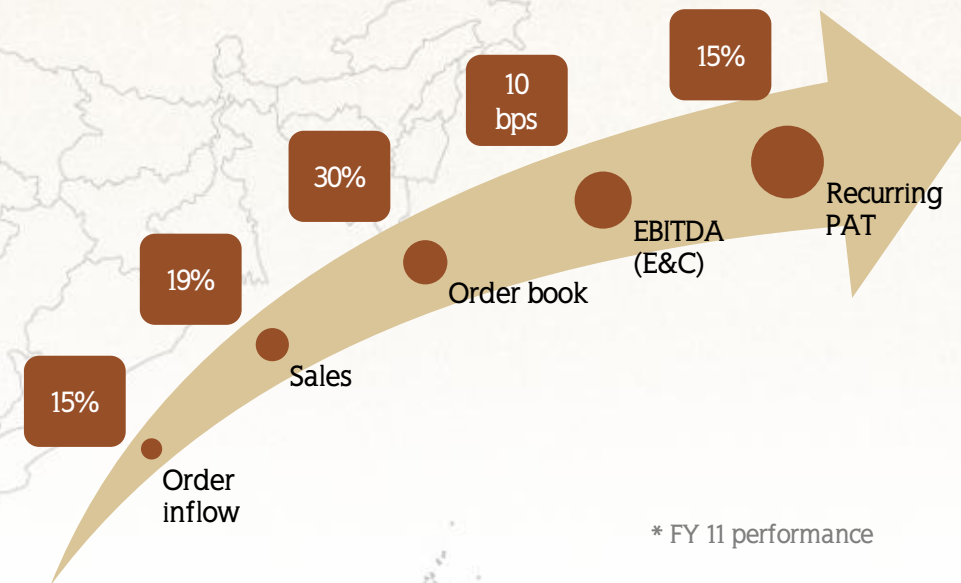


Source: Company Reports, Aranca Research

L&T – One of India’s leading players in the sector ... (2/2)

Recent Awards and Recognitions

- Green Business Leadership Award (2011)
- Thought Leader Brands in India (2011)
- Golden Peacock Award for CSR (2011)
- 'India's Most Respected Company' in Infrastructure (2011)
- 'India Shining Star CSR Award' (Wockhardt Foundation, 2011)



Notes: CRISIL - Credit Rating and Information Services of India Ltd
ICRA - Investment information and credit rating agency of India

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Growth opportunities in electrical machinery industry

Nuclear power generation

- With many bilateral nuclear agreements in place, India is expected to become a major hub for manufacturing nuclear reactors and associated components
- State-owned Nuclear Power Corporation of India Ltd plans to set up nuclear reactors in the near future to add substantial capacity
- The Indian Government proposes to add 3,380 MW of nuclear power capacity by 2012 as part of its capacity addition programme in the 11th Five-Year Plan
- There is a huge opportunity for players to re-orient and focus their efforts to develop technology for higher capacity thermal units and nuclear reactors

Power capacity addition

- Market-oriented reforms (such as the target of 'Power for all' by 2012 and plans to add 78 GW of capacity by 2012 and another 92 GW by 2017) provide high incentives for capacity addition in power generation, which would increase the demand for electrical machinery
- Foreign participation in the development and financing of generation and transmission assets, engineering services, equipment supply and technology collaboration in nuclear and clean coal technologies is expected to increase

High-voltage technology

- Power transmission in India, which is currently carried out largely in the 220 KV and 400 KV range, is expected to move up to a higher range of 765 KV and high-voltage direct current
- This presents a significant opportunity to manufacturers with capabilities in high-voltage (HV) to develop technology that can handle the need of such high voltages in the country

Source: Aranca Research

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Industry associations

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Glossary

- **BTG** : Boilers, Turbines, Generators
- **BHEL** : Bharat Heavy Electricals Limited
- **MHI**: Mitsubishi heavy industries
- **DHI** : Department of Heavy Industries
- **BHEL** : Bharat Heavy Electricals Ltd
- **EEPC** : Engineering Export Promotion Council
- **L&T** : Larsen and Toubro
- **CEA** : Central Electrical Authority
- **HVDC** : High Voltage Direct Current
- **CAGR** : Compounded Annual Growth Rate
- **USD**: US Dollar; Conversion rate used: USD1 = INR 48
- **FY**: Indian financial year (April to March)
- Wherever applicable, numbers have been rounded off to one decimal

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