



ENGINEERING

April 2010

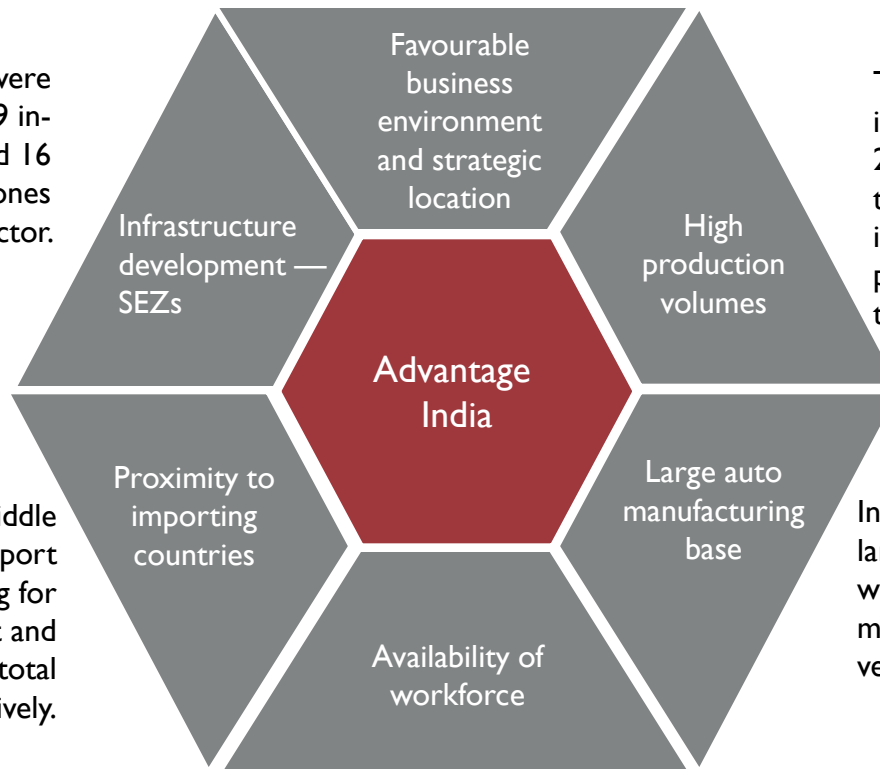
Contents

- ❖ **Advantage India**
- ❖ Market overview
- ❖ Industry infrastructure
- ❖ Investments
- ❖ Policy and Regulatory framework
- ❖ Opportunities
- ❖ Industry associations

Advantage India

As of June 19, 2009, there were 23 formally approved, 9 in-principle approved and 16 notified special economic zones (SEZs) in the engineering sector.

Europe, Asia and the Middle East are the leading export destinations, accounting for 26 per cent, 25 per cent and 18 per cent of the total exports, respectively.



The production of steel forging in 2007–08 (up to December 2007) was reported at 3,52,662 tonnes. The production of industrial fasteners during the period was reported at 66,772 tonnes.

India is the world's second-largest manufacturer of two wheelers and the fifth-largest manufacturer of commercial vehicles.

The engineering sector employs about 2.6 million people directly, which accounts for 29 per cent of the total workforce engaged in the organised sector.

Sources: Department of Heavy Industries, Gol, annual report 2008–09; "Light Engineering Industry", Business Portal of India website. www.business.gov.in, accessed January 5, 2010; "Employment in Organized Industry: Engineering Sector contributes the most", Engineering Export Promotion Council website, www.eepc.org, accessed January 6, 2010

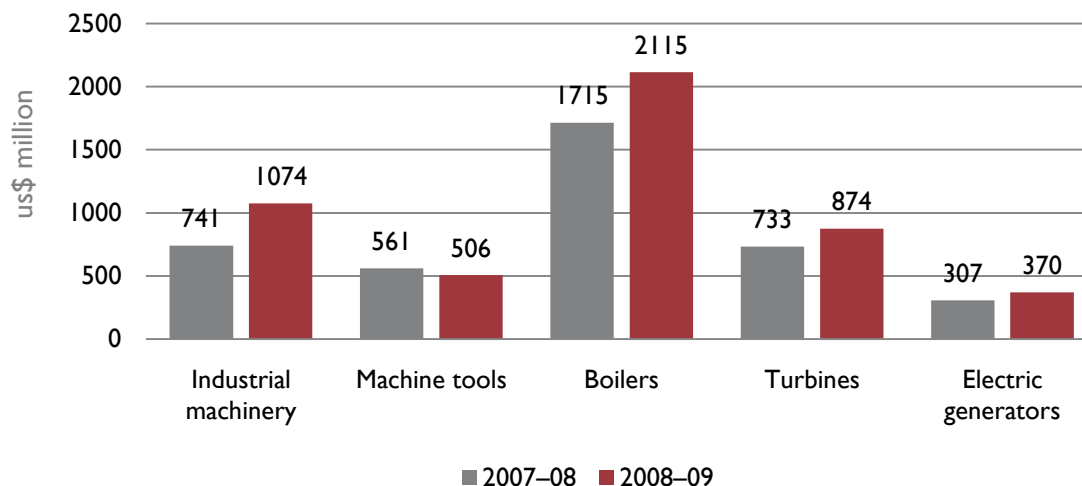
Contents

- ❖ Advantage India
- ❖ **Market overview**
- ❖ Industry infrastructure
- ❖ Investments
- ❖ Policy and Regulatory framework
- ❖ Opportunities
- ❖ Industry associations

Market overview

The growth in the engineering sector* was recorded at 5.3 per cent between 2007-08 and 2008-09, measured on the basis of Index of Industrial Production (IIP), which registered an overall growth of 2.8 per cent during this period.

Size of key engineering segments

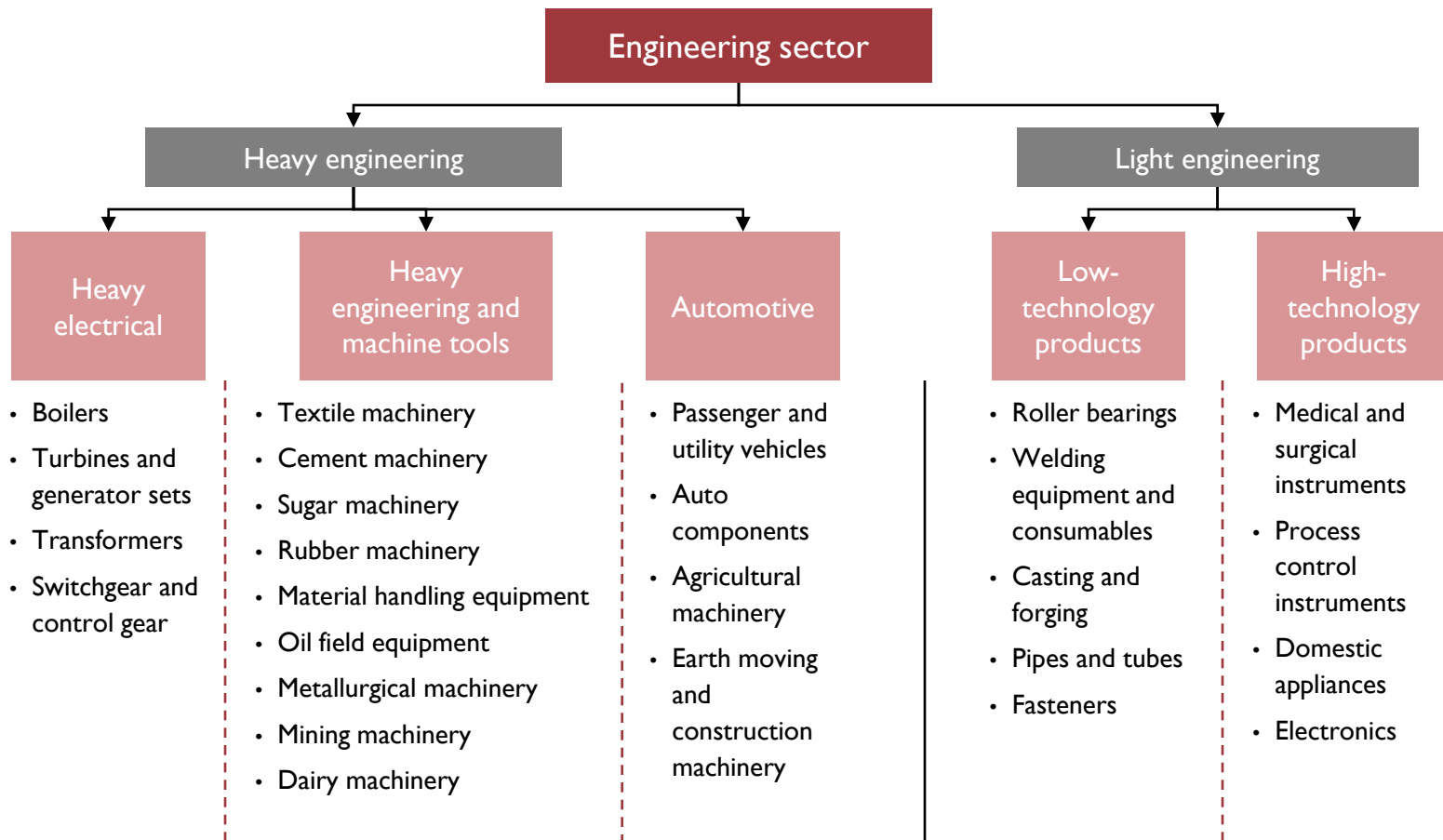


- Industrial machinery recorded the highest growth rate of 45 per cent, increasing from US\$ 741 million (INR 35.59 billion) in 2007-08 to US\$ 1,074 million (INR 51.54 billion) in 2008-09.

Sources: Department of Heavy Industries, Gol, annual report 2008-09; "Quick Estimates of Index of Industrial Production and Use-based Index (Base 1993-94=100) for the month of October, 2009", Ministry of Statistics and Programme Implementation website, www.mospi.nic.in, accessed January 5, 2010

*For the purpose of this report, the engineering sector comprises the National Industrial Classification (NIC) codes 34-38 (as per NIC-1987).

Market segments



Sources: Department of Heavy Industries, Gol, annual report 2008–09; “Light Engineering Industry,” *Business Portal of India* website. www.business.gov.in, accessed January 5, 2010

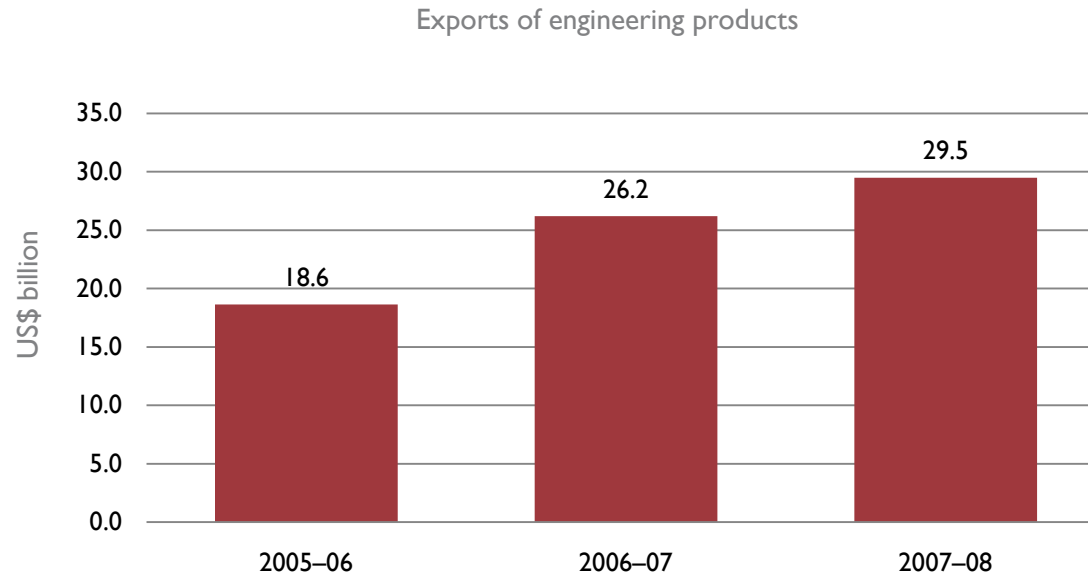
Number of players operating across segments

Industry segment	Number of players
Heavy engineering	
Heavy electrical	144
Heavy engineering and machine tools	443
Automotive	617
Light engineering	
Low-technology products	826
High-technology products	673

- The industry is largely dominated by organised players as the sector demands a high level of capacity and investment.

Source: Prowess, January 8, 2010, Centre for Monitoring Indian Economy

Exports



- The engineering exports from India increased by 12.5 per cent between 2006-07 and 2007-08.
- The engineering sector accounted for 21.6 per cent of the country's total exports in 2007-08.

Sources: "Export Statistics", Engineering Export Promotion Council website, www.eepcindia.org, accessed January 8, 2010; "Export: Country-wise", Department of Commerce website, www.commerce.nic.in/eidb/Default.asp, accessed January 8, 2010

Domestic demand — heavy electrical

Boilers	• Industry players have adequate capacity to manufacture indigenous boilers with super critical parameters up to 1,000 MW unit size in order to meet the domestic demand. • Bharat Heavy Electricals Limited (BHEL) is the largest manufacturer of boilers in the country, accounting for two-thirds of the market share.
Turbines and generator sets	• The established capacity of domestic players to manufacture various kinds of turbines such as steam, hydro and industrial turbines is more than 10,000 MW per annum. • The AC generator industry in India is adequately catering to the alternative power requirements of various sectors, with manufacturers in India capable of manufacturing AC generators, right from 0.5 KVA to 25,000 KVA with specified voltage ratings.
Transformers	• Energy-efficient amorphous core transformers, with low losses and noise levels, as well as special transformers used for welding, traction and electrical furnaces, are being manufactured in India to meet the rising domestic demand.
Switchgear and control gear	• Players in the Indian switchgear industry manufacture the entire range of circuit breakers from bulk oil, minimum oil, air blast and vacuum to sulphur hexafluoride, in accordance with the standard specification. • The switchgear and control gear requirements of the industrial and power sector are met by the domestic players, with the complete voltage range from 240 KV to 800 KV.

Source: Department of Heavy Industries, GoI, annual report 2008–09

Domestic demand — heavy engineering

Cement machinery	• The domestic demand is entirely met by indigenous production, with cement plants based on dry processing and pre-calcination technology for capacities up to 7,500 tonnes crushing per day (TPD), being manufactured in the country. • Currently, there are 18 units in the organised sector well equipped with the manufacturing equipment and complete cement plant machinery.
Sugar machinery	• Domestic manufacturers occupy a major position in the global market and are capable of manufacturing sugar plants of the latest design, with a capacity of up to 10,000 TCD, from the concept to the commissioning stage. • There are currently 27 units in the organised sector for the manufacture of complete sugar plants and components.
Rubber machinery	• Currently, there are 19 units in the organised sector for the manufacture of rubber machinery, primarily required for the tyre/tube industry. • The range of equipment manufactured in the country includes inter-mixer, tyre curing presses, tube splicers, bladder curing presses, tyre moulds, tyre building machines, turner servicer, bias cutters, rubber injection moulding machines and bead wires.

Source: Department of Heavy Industries, GoI, annual report 2008–09

Domestic demand — automotive

Passenger and utility vehicles	- India is the world's second-largest manufacturer of two-wheelers and the fifth-largest manufacturer of commercial vehicles. - Currently, there are 16 manufacturers of passenger cars and multi-utility vehicles, 13 manufacturers of commercial vehicles, 16 manufacturers of two-wheelers and three-wheelers and 12 manufacturers of tractors.
Auto components	- The auto components industry has more than 500 companies in the organised sector and about 10,000 firms in the unorganised sector. - More than 95 per cent companies are ISO 9000 certified, while an increasing number are registering as ISO-TS and ISO-18000 certified.
Agricultural machinery	- The agricultural machinery industry mainly consists of agriculture tractors, power tillers, combine harvesters and other agricultural machineries and implements. - Domestic manufacturing is dominated by agricultural tractors, with more than 250,000 tractors being manufactured every year by 13 domestic manufacturers. - Agricultural tractors are available in different horsepower (HP) ranges of less than 25 HP to more than 55 HP.

Source: Department of Heavy Industries, GoI, annual report 2008–09

Domestic demand — light engineering

Casting and forging

- The Indian foundry industry is the fifth largest in the world.
- The production of steel castings and cast iron castings for 2006–07 in the organised sector was recorded at 0.78 million tonnes.
- India's forging industry not only meets almost the entire domestic demand of forgings, but also exports a substantial part of its manufactured products.
- The indigenous industry comprises about 10 large units and a large number of medium and small units.

Medical and surgical instruments

- Indigenous manufacturers cater to the domestic demand of a wide variety of electro medical equipment such as electrocardiograph (ECG) machines, X-ray scanners, computed tomography (CT) scanners, short wave physiotherapy units, electro surgical units and blood chemistry analysers.
- Most units manufacturing medical equipment are in the small-scale industrial (SSI) sector.

Source: "Light Engineering Industry", Business Portal of India website. www.business.gov.in, accessed January 5, 2010

Growth drivers ... (1/2)

The engineering sector is dependent on other sectors such as power, infrastructure and construction for end consumption. The growth of the engineering sector is directly contingent on the growth of these sectors.

Power sector

- The power sector accounts for a substantial share of the consumption of heavy electrical and heavy engineering machinery.
- For engineering companies, the power sector has been the largest contributor to revenues. Companies such as BHEL and ABB derive approximately 69 per cent and 60 per cent of their revenues, respectively, by supplying equipment to the sector.
- In the Eleventh Five Year Plan (2007–2012), the country is expected to add around 60,000 MW of generation capacity. The total spending on these projects is estimated to be around US\$ 100 billion by 2011–12.

Source: Indian Engineering and Construction Industry Study – Financial Year 2007–08, Ernst & Young

Growth drivers ... (2/2)

Infrastructure sector

- The Indian construction sector is the second-largest economic activity after agriculture, employing approximately 14 per cent of the total working population of India.
- There has been an increasing demand for construction activity across all segments — infrastructure, real estate and industrial construction.
- Construction material accounts for nearly two-third of the average construction costs. Construction equipment covers a wide range of machinery such as hydraulic excavators, wheel loaders, backhoe loaders, bull dozers, dump trucks, tippers, graders, pavers, asphalt drum/wet mix plants, breakers, vibratory compactors and cranes.
- Key infrastructure projects such as roads and highways, bridges and urban construction, power projects, railways, airport modernisation, real estate development and mining have in recent years attracted significant investments. These, in turn, provide major business opportunities to equipment manufacturers.

Sources: Indian Engineering and Construction Industry Study — Financial Year 2007–08, Ernst & Young; Department of Heavy Industries, GoI, annual report 2008–09

Key trends

Entry of international companies

- With 100 per cent FDI through the automatic route being permitted along with the growth opportunity offered by this market, major international players such as Cummins, ABB and Alfa Laval have entered the Indian engineering sector, thereby increasing the competitiveness of the industry.

Migration to value-added products

- Increasing competition has led domestic players to focus on improving their capabilities.
- Indian players have become more quality conscious, and are upgrading their technology base, in sync with the global market requirements.
- More than 2,500 firms in the engineering sector have the ISO 9000 accreditation. Companies are increasingly focussing on their R&D and product development efforts.

Diversification of risk

- A number of companies in the engineering sector have diversified, either geographically (mainly to the Middle Eastern countries) or sector-wise.
 - Larsen & Toubro (L&T) has forayed into power equipment manufacturing.
 - Simplex Infra has moved to the Middle East.
 - BHEL has plans of exporting to Syria and Vietnam.
 - Thermax has entered the power utility segment.

Sources: Indian Engineering and Construction Industry Study — Financial Year 2007–08, Ernst & Young; Department of Heavy Industries, GoI, annual report 2008–09

Key players ... (1/3)

Company	Parent company	Sales (US\$ billion), 2008–09	Products/divisions/ sectors served	Plants
BHEL	Public sector enterprise; India's largest engineering and manufacturing enterprise	6.09	Caters to power generation and transmission, transportation (especially railways), telecom, renewable energy and the industry at large	14 manufacturing divisions, 4 power sector centres, more than 100 project sites, 8 service centres and 18 regional offices
Hindustan Aeronautics Ltd	Public sector enterprise	2.14	Supplies and provides services mainly to the Indian defence services, coast guard and border security force. The transport aircraft and helicopters have also been supplied to airlines as well as state governments of India.	Facilities located throughout India, including Nashik, Korwa, Kanpur, Koraput, Lucknow and Hyderabad
Crompton Greaves	Part of the Avantha Group	1.91	Largest private sector enterprise in the business of electrical engineering	Facilities located at Bhind, Mumbai, Nashik, Hosur and Goa

Sources: Department of Heavy Industries, Gol, annual report 2008–09; Crompton Greaves Ltd, annual report 2008–09

Key players ... (2/3)

Company	Parent company	Sales (US\$ billion) 2008–09	Products/divisions/ sectors served	Plants
Larsen & Toubro Ltd (L&T)	Part of the L&T Group, India's largest engineering and construction conglomerate	8.93	Four segments namely engineering and construction (E&C), cement, electrical and electronics and diversified business. It also has 19 subsidiaries	Facilities are located in Coimbatore in Tamil Nadu, Kurnool district in Andhra Pradesh and Hassan in Karnataka.
Thermax Ltd	Originally incorporated as Thermo-Dynamics Pvt Ltd On July 1, 1980, Wanson (India) Ltd was amalgamated with Thermax India Pvt Ltd	0.76	Six core businesses — boilers and heaters, absorption cooling, water and waste solutions, chemicals for energy and environment applications, captive power and cogeneration systems, air pollution and purification	It has five manufacturing facilities, 12 sales and service offices and a widespread franchisee and dealer network across the country.
Cummins India Ltd	Part of Cummins Inc, the world's largest designer and manufacturer of diesel engines	0.79	Power generation, construction and mining, compressors, locomotives, marine, oilfields, fire pumps and cranes, automotive and special applications	Plants are located at Nashik, Bardez, Sholapur, Pune and Bharuch

Sources: L&T Ltd, annual report 2008–09; Thermax Ltd, annual report 2008–09; Cummins India Ltd, annual report 2008–09

Key players ... (3/3)

Company	Parent company	Sales (US\$ billion)	Products/divisions/ sectors served	Plants
Alfa Laval (India) Ltd	It is a subsidiary of Alfa Laval AB, the Swedish multinational engineering company. The company has approximately 9000 employees .	0.2 (December 2008)	Alfa Laval India has two divisions — equipment division and process technology division	Manufacturing facilities in Pune, Sarole and Satara
Asea Brown Boveri Ltd (ABB)	It is a subsidiary of Zurich-based ABB Ltd, which is a leader in power and automation technologies. The company operates in more than 100 countries and employs about 120,000 people.	1.6 (December 2008)	ABB India caters to the power and industry sectors	Vast installed base, extensive local manufacturing at eight units and a nationwide marketing and service presence. ABB has also set up a global R&D centre in Bengaluru.
Siemens Ltd	This is the flagship company of the Siemens Group in India. Siemens AG, the parent company, holds 54.63 percent in Siemens Ltd	23.65 (2008-09)	Power generation and distribution equipment, industrial projects and equipment, transportation systems, communication and healthcare products	Plants at Aurangabad, Nashik, Goa, Thane and North 24 Parganas, West Bengal

Sources: Alfa Laval (India); Ltd ABB Ltd annual report 2008–09; Siemens Ltd, annual report 2008–09

Contents

- ❖ Advantage India
- ❖ Market overview
- ❖ **Industry infrastructure**
- ❖ Investments
- ❖ Policy and Regulatory framework
- ❖ Opportunities
- ❖ Industry associations

Industry infrastructure — Special Economic Zones (SEZs)

... (1/2)

Developer	Location	Product
Andhra Pradesh Industrial Infrastructure Corporation Limited (APIIC)	Ranga Reddy, Andhra Pradesh	Aerospace and precision engineering
Deccan Infrastructure and Land Holdings Ltd	Nalgonda, Andhra Pradesh	Light engineering
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
M/s Synefra Engineering and Construction Ltd	Vadodara, Gujarat	High-tech engineering and related products
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

Industry infrastructure — Special Economic Zones (SEZs)

... (2/2)

Developer	Location	Product
Quest Machining and Manufacturing Pvt Ltd	Belgaum, Karnataka	Auto, aerospace and industrial engineering
Viraj Profiles Ltd	Thane, Maharashtra	Stainless steel engineering products
Navi Mumbai SEZ Pvt Ltd	Navi Mumbai, Maharashtra	Light engineering
Maharashtra Industrial Development Corporation (MIDC)	Satara, Maharashtra	Engineering
Township Developers India Pvt Ltd	Pune, Maharashtra	Engineering
Orissa Industrial Infrastructure Development Corporation (IDCO)	Jajpur, Orissa	Metallurgical engineering
Vividha Infrastructure Pvt Ltd	Patiala, Punjab	Engineering
Mahindra Worldcity (Jaipur) Ltd	Jaipur, Rajasthan	Light 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: "Formal approvals granted in the Board of Approvals after SEZ rules coming into force as on January 15, 2009", *SEZIndia* website, www.sezindia.nic.in, accessed January 5, 2010

Contents

- ❖ Advantage India
- ❖ Market overview
- ❖ Industry infrastructure
- ❖ **Investments**
- ❖ Policy and Regulatory framework
- ❖ Opportunities
- ❖ Industry associations

Investments

- The largest inbound deal announced was the 20 per cent acquisition of Anchor Electricals Pvt Ltd by Panasonic Electric Works Co for US\$ 96.2 million on September 24, 2009.
- The largest outbound deal announced was the acquisition of Rocklands Richfields Ltd by Jindal Steel and Power Ltd for US\$ 1,700 million on September 23, 2009.
- The largest domestic deal announced was the acquisition of VS Dempo & Co Pvt Ltd by Sesa Goa Ltd for US\$ 367.6 million on June 11, 2009.

M&A scenario — details		
Period: January 1, 2009 to November 30, 2009		
Deal type	No of deals	Deal value (US\$ million)
Inbound	38	96.2
Outbound	23	1,700
Domestic	66	367.6

Sources: Bloomberg, accessed 4 December 2009; “Fact Sheet On Foreign Direct Investment (FDI)”, Department of Industrial Policy and Promotion website, www.dipp.nic.in, accessed January 7, 2010; Ernst & Young analysis

Cumulative FDI inflows	
Period: April 2000 to January 2010	
Sector	US\$ million
Automobile industry	4,391.0
Metallurgical industries	3,073.0
Electrical equipment	2,124.8
Electronics	785.7
Industrial machinery	511.8
Machine tools	374.4
Total	11,260.7

Contents

- ❖ Advantage India
- ❖ Market overview
- ❖ Industry infrastructure
- ❖ Investments
- ❖ **Policy and Regulatory framework**
- ❖ Opportunities
- ❖ Industry associations

Policy and regulatory framework

- 100 per cent FDI through the automatic route is permitted in the engineering sector.
- Foreign technology agreements are also permitted under the automatic route for this sector:
 - Lump-sum fees not exceeding US\$ 2 million
 - Royalty is to be levied at 5 per cent on domestic sales and 8 per cent on exports, net of taxes.
 - Royalty up to 2 per cent on exports and 1 per cent is also permitted for the use of trade marks and brand name, without any technology transfer.
- Some of the initiatives taken by the government to promote the engineering segment include:
 - SEZ policy and industrial corridor development across centres of development
 - Removal of tariff protection on capital goods
 - Reduction of custom duties on a range of equipment
 - Incentives for R&D activities
 - Initiatives focussed on infrastructure development and construction and to increase power generation

Source: “Investing in India”, Department of Industrial Policy & Promotion website, www.dipp.gov.in, accessed January 8, 2010

Contents

- ❖ Advantage India
- ❖ Market overview
- ❖ Industry infrastructure
- ❖ Investments
- ❖ Policy and Regulatory framework
- ❖ **Opportunities**
- ❖ Industry associations

Opportunities ... (I/4)

Machine tools

- The demand for machine tools largely depends on the growth in the capital goods sector, especially in the automobile and textile industry.
- In keeping with the industry's demand for higher productivity, superior precision and accuracy, as well as low-cost manufacturing solutions, computer numerically controlled (CNC) machine tools constitute a significant share of the Indian machine tools market.
- This segment accounts for more than 70 per cent of the total metal working machine tools.

Opportunities ... (2/4)

Material handling system

- Material handling equipment are expected to gain from the robust demand from steel, power, mineral and other infrastructure industries.
- These equipment cater to the needs of core industries such as cement, power, ports, mining, fertilisers, and iron and steel plants.
- The steel industry contributes close to 52 per cent, while power contributes 23 per cent to the demand for these equipment.
- The estimated market demand for material handling equipment is estimated at US\$ 30 billion in 2007–2014.

Opportunities ... (3/4)

Auto components

- Global auto majors are rapidly ramping up the value of components they source from India, steered by the country's advanced engineering skills, established production lines, a thriving domestic automobile industry and competitive costs.
- The auto component sector generated sales worth US\$ 18 billion in 2007–08, including exports valued at US\$ 3.6 billion.
- Industry sales are expected to increase to US\$ 40 billion by 2016, with about US\$ 20 billion generated from exports.

Opportunities ... (4/4)

Power transmission and distribution (T&D) hardware

- Factors such as the growth in power generation, privatisation of distribution and government initiatives to create a national distribution grid are collectively contributing to the rise in T&D expenditure.
- By 2012, the transmission network is expected to be about 60,000 circuit km.
- The potential demand of T&D hardware is about 630,000 transformers, with the assumption that 90,000 MW will be added by 2012.

Source: Indian Engineering and Construction Industry Study — Financial Year 2007–08, Ernst & Young

Contents

- ❖ Advantage India
- ❖ Market overview
- ❖ Industry infrastructure
- ❖ Investments
- ❖ Policy and Regulatory framework
- ❖ Opportunities
- ❖ **Industry associations**

Industry associations

Engineering Export Promotion Council (EEPC)

‘Vanijya Bhawan’, 1st Floor

International Trade Facilitation Centre

1/1, Wood Street

Kolkata, West Bengal – 700016

Phone: 91-33-22890651, 22890652

Fax: 91-33-22890654

E-mail: eepec@eepecindia.org

Note

Wherever applicable, numbers in the report have been rounded off to their nearest whole number.

Conversion rate used: US\$ 1 = INR 48

DISCLAIMER

India Brand Equity Foundation (“IBEF”) engaged Ernst & Young Pvt Ltd to prepare this presentation and the same has been prepared by Ernst & Young in consultation with IBEF.

All rights reserved. All copyright in this presentation and related works is solely and exclusively owned by IBEF. The same may not be reproduced, wholly or in part in any material form (including photocopying or storing it in any medium by electronic means and whether or not transiently or incidentally to some other use of this presentation), modified or in any manner communicated to any third party except with the written approval of IBEF.

This presentation is for information purposes only. While due care has been taken during the compilation of this

presentation to ensure that the information is accurate to the best of Ernst & Young and IBEF’s knowledge and belief, the content is not to be construed in any manner whatsoever as a substitute for professional advice.

Ernst & Young and IBEF neither recommend nor endorse any specific products or services that may have been mentioned in this presentation and nor do they assume any liability or responsibility for the outcome of decisions taken as a result of any reliance placed on this presentation.

Neither Ernst & Young nor IBEF shall be liable for any direct or indirect damages that may arise due to any act or omission on the part of the user due to any reliance placed or guidance taken from any portion of this presentation.