

Sterling Performance with new landmarks.
Company scores A Double — Turnover above Rs. 10,000 crore
— Net Profit over Rs. 1,000 crore

	2003-04	2004-05 (Prov.)	% change
Turnover	Rs. 8662 Crore	Rs. 10,520 Crore	21 %
Profit Before Tax (PBT)	Rs. 1015 Crore	Rs. 1,606 Crore	58 %
Net Profit (PAT)	Rs. 658 Crore	Rs. 1,002 Crore	52 %
Economic Value Added (EVA)	Rs. 366 Crore	Rs. 518 Crore	42 %
Value Added per employee	Rs. 8.37 Lakh	Rs. 9.92 Lakh	19 %
Earnings Per Share (EPS)	Rs. 26.89	Rs. 40.9	52 %
Megawatt Commissioned	2699 MW	4092 MW	52 %

- ◆ **Turnover at Rs. 10,520 crore** was a **growth of 21 %** on top of 16 % achieved in 2003-04. **Net profits at Rs. 1,002 Crore** witnessed a **jump of 52 %** over that of 2003-04. Further, this is the highest turnover growth rate achieved in the last two decades.
- ◆ **EVA at Rs. 518 Crore — up by 42 %** over that of Rs. 366 crore achieved in 2003-2004.
- ◆ **Highest-ever order inflow of Rs. 18,016 Crore — while operating in intensely competitive national & international markets.** Maximum EPC/ Turnkey contracts in a year — 6 out of 8 orders for thermal power projects.
- ◆ **New benchmark created in execution of power projects.** 500 MW Unit-7 of Ramagundam STPS was synchronized in a record time of 36 months & 10 days.
- ◆ **Installed equipment Performance improves further.** BHEL-supplied thermal sets record a new high in PLF at 75.7 % — 1.4% more than the national average and Operating Availability of BHEL-supplied thermal sets reaches 84.3%. Further, of the 27 power stations awarded Govt. of India's Gold Shield for excellent performance, 23 were equipped with BHEL's power generating equipment.
- ◆ **Further success in overseas business achieved** with first-ever export order for a 63 MW (ISO) Combined-Cycle Power Plant (CCPP) in Australia. A maiden order for mainline Locomotives from Sudan marked BHEL entry into a new market with a new product.
- ◆ **BHEL is gearing up to enhance its annual manufacturing capacity** from the present 6,000 MW to 10,000 MW by March, 2007 to cater to country's ambitious power capacity addition programme.
- ◆ **To maintain R&D edge,** World-class Centres of Excellence for Computational Fluid Dynamics and Permanent Magnet Machines established — creating an enabling environment in crucial technology areas. Further, India's first indigenously developed Thyristor-Controlled Series Capacitors for improving power flow and system stability in 400 kV systems, successfully test-commissioned at Ballabgarh.

BHEL has maintained the momentum gained in the last fiscal and once again recorded an excellent performance, notching up sizeable gains in all areas of its activity and reaffirming its commitment to 'Brightening Lives and Powering Progress'.



500 MW Unit-7 at Ramagundam STPS synchronised in a record time of 36 months & 10 days

FINANCIAL PERFORMANCE

- ◆ BHEL notched up its highest-ever turnover of **Rs. 10,520 Crore**, crossing the 10,000 Crore mark for the first time, compared to Rs.8,662 Crore of the previous year. The turnover growth of over 21 % has been achieved on top of 16% achieved in 2003-04. Further, this is the highest growth rate achieved in last two decades.
- ◆ The company's Net Profit (PAT) surged by **52 % at Rs. 1,002 Crore** against Rs.658 Crore in the previous fiscal. Profit Before Tax (PBT) also rose by **58 % at Rs. 1,606 Crore**, during the year. An all-time-high interim equity dividend of **35%** was paid for fiscal 2004-05, maintaining the track record of paying dividends uninterrupted for the last 29 years.
- ◆ Earnings Per Share (EPS), during the year, stood at **Rs. 40.9** — an increase of **52 %** over that achieved in 2003-04.
- ◆ **EVA surged to Rs. 518 Crore**, registering an increase of **42 %** over that of Rs. 366 Crore in 2003-04.
- ◆ Value Added per employee went up to **Rs. 9.92 lakh** from Rs.8.37 lakh in 2003-04 and Net Asset Value (NAV) per share increased to **Rs. 248**, from **Rs. 216** in the previous year, indicating the intrinsic strength of the company.
- ◆ Total export turnover (Physical + Deemed) stood at **Rs. 2,331 Crore** during the year, accounting for over **22 %** of the company's turnover during the year.

Sustained performance by the company became possible as a result of strategic management with a blend of appropriate measures including improvements in operational efficiencies, benchmarking against international standards, prudent financial management, upgrading manufacturing facilities, and dynamic HRM policies.

Major credit rating agencies like ICRA and CRISIL have reaffirmed their faith in BHEL's strong fundamentals and commendable performance during the year, by retaining the highest ratings for the company's debt and deposit programmes. This also reflects the company's dominant position in the domestic power generation and electrical equipment market.

ORDERS INFLOW

- ◆ During the year, BHEL secured orders worth **Rs. 18,016 Crore** from domestic & overseas markets. At the end of the year, outstanding orders in hand for execution in future, stand at over **Rs. 31,800 Crore** — **the highest-ever**, both in physical as well as financial terms.

Power Sector

- ◆ In the Power Sector business segment, BHEL secured orders worth **Rs. 13,458 Crore** and maintained its track record of bagging orders under International Competitive Bidding (ICB). During the year, BHEL secured orders for power plant equipment worth **5668 MW**, including six orders for projects to be executed on EPC/turnkey basis. Also, renewed thrust on Renovation & Modernisation, Spares and Services business resulted in record orders worth **Rs. 1,283 Crore**, during the year.
- ◆ Raigarh TPS (4x250 MW) of Jindal Power Ltd. was the single-largest order in the IPP segment, won against International Competitive bidding.
- ◆ Other significant orders received in thermal & gas included : Mejia TPS Extn. (2x250 MW) and Chandrapura TPS Extn. (2x250 MW) of DVC ; Bakreswar TPS (2x210 MW) and Santaldih TPS (1x250 MW) of WBPDC; Paras TPS (1x250 MW) of MSEB ; Amarkantak TPS (1x210 MW) of MPSEB ; Dholpur gas-based CCPP (330 MW) of RVUNL; and Bhilai Expansion (2x250 MW) of BESCL.

- ◆ Orders received in Hydro included: NTPC's foray into hydro — Koldam HEP (4x200 MW) ; Kameng HEP (4x150 MW) of NEEPCO to be equipped with Francis type hydro turbines with the highest head ever offered by BHEL ; Sewa HEP (3x40 MW) of NHPC; and Mukerian HEP (2x9 MW) of PSEB to be equipped with the largest Bulb Generating Set being executed by BHEL in the country.

Industry Sector

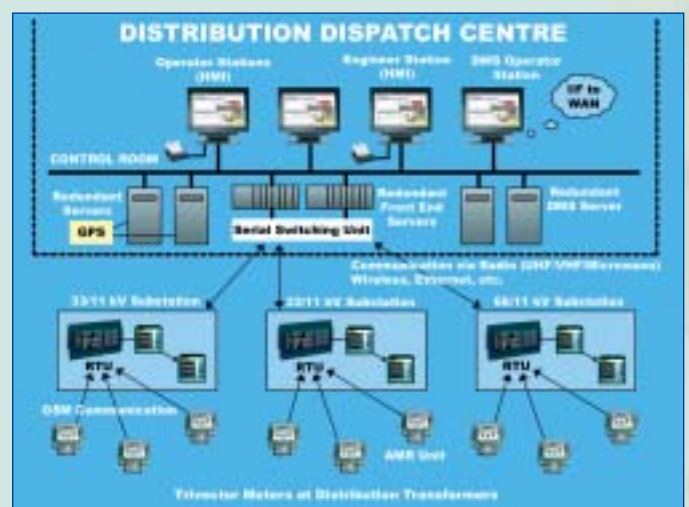
- ◆ In the Industry Sector business segment, increased customer focus and renewed efforts for entry into new business areas resulted in several orders, booked against intense competition, for equipment/systems to be used in industry, transmission, transportation, oil exploration and renewable energy, besides Captive Power Plants. Orders worth **Rs. 4,110 Crore** were received during the year, comprising:
 - 250 MW Captive Power Plant (2x125 MW) at Jindal Stainless Limited (JSL)'s upcoming project at Dubri in Orissa ; Turnkey contract for 40 MW Co-generation Captive Power Plant (2x20 MW) from HPCL as part of its Clean Fuels project at Visakhapatnam; and 58 MW Combined-Cycle Power Plant from Regency Power Corporation Ltd., promoted by KSK Energy Ventures Ltd. — an IPP.
 - Orders for 17 shunting locos of various ratings from 350 HP to 1400 HP.
 - First turnkey contract for a 400 kV grid substation in Bihar, besides two turnkey orders for 220 kV substations from Uttaranchal Power Corporation Ltd.
 - Breakthrough order for Highest-rating BCL-600 series Compressor for the Motor Spirit Quality project at IOCL's Gujarat Refinery.
 - Focus on Distributed Power Generation Business resulted in order for Indira Sagar Small Hydro Project (3x5 MW) from Narmada Valley Development Authority.
 - First-ever order for two Ballast Cleaning Machines from Railway Board, opening a new line of business and marking the entry of BHEL in the high-technology area of specialized equipment for Indian Railways, hitherto the monopoly of an Austrian company — world leader in this area with a global market share of over 80%.
 - As a precursor for gaining experience in power distribution area, Supervisory Control and Data Acquisition System (SCADA) and Distribution Management System (DMS) for the electrical distribution network of BHEL's Bhopal township were successfully commissioned.



India's first indigenously developed thyristor-controlled series capacitors for improving power flow and system stability in 400kV systems successfully test-commissioned at Ballabgarh

International Business

- ◆ BHEL achieved a physical export order inflow of **Rs. 448 Crore** during the year.
- ◆ Several prestigious orders were secured, each one of which signifies a major step forward towards consolidation in international business:



SCADA Distribution Management System

- First-ever export order for a 63 MW (ISO) Combined-Cycle Power Plant from Clough Australia for Western Energy Pvt. Ltd., Australia.
- Largest overseas orders for Compressors - one for Lekhwair and three for Yibal projects of Petroleum Development Oman.
- First-ever export order from Sudan for six 2200 HP & two 1700 HP Diesel-Electric Locomotives for Sudan Railways. This is the first-ever export order from Sudan as well as the maiden export order for mainline Locomotives received by BHEL.
- First-ever export order for supply and supervision of 15.3 MW STG package from Thailand, placed on BHEL by Thai Carbon Black Co. Ltd., Thailand.
- Largest overseas orders for supply of Solar cells and PV Modules to Italy & Germany. These orders were secured from SE Projects, Italy and IRRON, Germany, further expanding BHEL's presence in the export market for photovoltaics.
- ◆ Continued focus on After-Sales Services led to orders for spares & services from Bangladesh, South Korea, Kazakhstan, Cyprus, Oman, Sri Lanka, Malta, Malaysia, Greece and China.

PROJECT COMMISSIONING

- ◆ BHEL exceeded CEA's commissioning target in the Utility segment and added 21 sets of 3,548 MW, during the year, in addition to 18 captive/industrial sets of 467 MW, besides completing overseas commissioning activities. The company has so far commissioned twenty five 500 MW sets in the country.
- ◆ Installed capacity of BHEL-supplied Utility sets went up to 74,780 MW and BHEL maintained its share of 65% in the country's total installed capacity of 1,15,356 MW.
- ◆ BHEL created a new benchmark in execution of thermal power projects, with the synchronisation of the 500 MW Unit-7 at Ramagundam STPS in a record time of just 36 months and 10 days — 80 days ahead of the contract schedule.
- ◆ In the area of **overseas project execution**, a significant landmark was achieved with the completion and handing over of the Qarn Alam Power Project of Petroleum Development Oman, equipped with the first-ever Advanced-Class Gas Turbine Generators (2x70 MW ISO), exported from India. Also, BHEL's first Steam Cycle Project (2x10.8 MW) in South East Asia (Indonesia) was commissioned, against maiden export order received from PT Indo Bharat Rayon.



2x250 MW Tau Devi Lal TPS commissioned on EPC basis

EQUIPMENT PERFORMANCE

- ◆ BHEL-built thermal sets achieved an **all-time-high Plant Load Factor (PLF) of 75.7 %** — higher than the national average by 1.4 % and **Operating Availability (OA)** was also the **highest at 84.3 %**. Further, BHEL-built thermal sets generated an all-time-high 331.2 Billion Units of electricity — 78.3 % of the total thermal power generation in the country.
- ◆ BHEL-make 200/210/250/500 MW thermal sets, which form the backbone of the country's thermal generating capacity, operated at an all-time-high PLF of 80.8 % & OA of 88.5 %. Notably, 42 sets achieved PLF of over 90 %.

- ◆ Out of the 27 power stations awarded with the Govt. of India's Gold Shield for excellent performance, BHEL had the privilege of supplying power generating equipment to 23 stations.

CONTINUED CUSTOMER SUPPORT

- ◆ BHEL continued its commitment to providing prompt & efficient customer service aimed at facilitating uninterrupted power supply and keeping power plants in good running condition. During the year, BHEL **overhauled 91 thermal utility & industrial sets**, including 4 non-BHEL sets. In addition, 33 hydro sets, including 6 non-BHEL sets, were also renovated during the year.



Qarn Alam Power Project of Petroleum Development Oman, equipped with first-ever Advanced-Class GTGs (2x70 MW ISO), exported from India

- ◆ Unit-7 at Kothagudem TPS of APGenco was updated to 120 MW from its original capacity of 110 MW. With this, all four 110 MW units at the power station have been updated to 120 MW. Prior to the Renovation & Modernisation, they were generating just 90-95 MW at less than 60% PLF and are now operating at a PLF of more than 90% with an OA of above 95%.
- ◆ BHEL took up overhauling and RLA of 500 MW set at Korba STPS of NTPC on war footing and restored the unit in just 23 days, setting a new benchmark. Also, the country's first 250MW unit commissioned by BHEL at Dahanu TPS of BSES was overhauled in a record time of only 9 days.
- ◆ Responding to an emergency call from ISRO's Liquid Propulsion Systems Centre, BHEL repaired a Heat Exchanger in the shortest possible time enabling production of liquid hydrogen used as propellant in launch vehicles.

R&D AND TECHNOLOGY DEVELOPMENT

R&D and technology development are of strategic importance to the company as it operates in a competitive environment where technology is a major factor. During the year, a turnover of **Rs. 800 Crore** was achieved through products and systems developed in-house.

- ◆ BHEL has established world-class '**Centres of Excellence**' for Computational Fluid Dynamics (COE-CFD) and Permanent Magnet Machines (COE-PMM). **COE-CFD** will enhance BHEL's capability in this field and provide its designers valuable insights into the behaviour of fluid flow in complex geometries. The centre will cater to the needs of the power as well as industrial sectors. **COE-PMM** is dedicated to the development of compact and efficient permanent magnet machines of high capacity with maintenance-free operation, suitable for industrial and strategic applications.
- ◆ For the first time in the country, BHEL has indigenously designed, manufactured and commissioned a **Bowl Mill of 91 TPH capacity**, used for pulverising coal in thermal power stations, at MSEB's 500 MW Chandrapura site. The optimized capacity will result in reducing the number of mills required for thermal power stations.
- ◆ BHEL has developed in-house, the **largest-size 60 MW Bubbling Fluidised Bed Combustion Boiler** against the maximum size of 40 MW, being supplied so far. A vast potential of replacement of old pulverized fuel boilers of 60 MW rating with these new Boilers exists, which can regain the original generating capacity even with poor coal quality. This development has opened a new line of business for the company.
- ◆ BHEL has ushered in a new era in generator design and manufacturing technology, with the **successful manufacture of the first total impregnated turbo generator stator for the 250 MW Unit-3 at Parichha**

TPS. The machine offers state-of-the-art insulation technology (totally Vacuum Impregnated Stator), leading to higher thermal stability, increased electrical life and larger operating life. BHEL has already secured orders for 14 sets of this design.

- ◆ BHEL has developed a **260 MW steam turbine designed to suit Combined-Cycle Power Plants** that are considered to be most efficient for power generation as they have the highest fuel to electric power conversion efficiency. This design offered for NTPC's combined-cycle power plant at Kawas has been accepted by the customer.



World-Class 'Centre of Excellence' for Computational Fluid Dynamics (COE-CFD) at Corporate R&D, Hyderabad

- ◆ To meet the requirement of green-field projects where auxiliary steam is not available and to reduce commissioning cycle time, a new eco-friendly, cost-effective and less hazardous chemical cleaning process for Boilers using an organic chemical, 'Ethylene Diamine Tetra Acetic Acid (EDTA)', as an alternative to conventional Hydrochloric Acid, has successfully been implemented in boilers of 210/250 MW at Panipat & Mejia TPS. The process has resulted in a cycle-time reduction of nearly 20 days.

CAPITAL INVESTMENT & ASSET MODERNISATION

- ◆ BHEL is implementing a phased investment programme of Rs.800-1000 Crore aimed at enhancing its installed manufacturing capacity of power plant equipment to 10,000 MW p.a. This should enable the company to play a major role in power plant capacity addition programme of the country in future.
- ◆ An investment of **Rs. 155 Crore** was made under capital programmes, during the year, to enhance the competitiveness of key products/areas through completion of ongoing modernization schemes, capacity augmentation and replacement of ageing facilities. In addition, **Rs. 39 Crore** was spent on refurbishment and modernisation of existing machine tools for realizing better accuracies and reliability leading to enhanced productivity.

QUALITY/ENVIRONMENT

- ◆ As a responsible corporate citizen and to meet exacting international standards in occupational health, safety and environment, BHEL continued re-certification of all its units/divisions for OHSAS-18001 Occupational Health and Safety Management System as well as ISO-14001 Environmental Management System.
- ◆ BHEL's journey in **Total Quality Management (TQM)** received a boost when all four major divisions of BHEL, viz. Trichy, Hardwar, Bhopal and Hyderabad along with Power Sector- Northern Region received the coveted **CII-EXIM commendation certificates**. Other significant achievements included :
 - 'IMC Ramakrishna Bajaj National Quality Award 2004' to BHEL's Ranipet plant, making it the first PSE to win this award.
 - BHEL's Hyderabad plant was adjudged the 'Best Organisation in promoting Quality Circles', for the second consecutive year by QCFI Chapter Convention.
- ◆ For contribution to the Renewable Energy sector, the 'SESI 2004:PVSEC Award for Applications', was conferred on BHEL's Electronics Division, by Solar Energy Society of India.

FOCUSSING ON HUMAN RESOURCES

- ◆ Conceptualized to institutionalize the culture of excellence in the company and to motivate its human resource, **'Excel Awards'** were presented to **56 employees**, during the year. With this, a total of 183 employees and two family members of employees have been presented these awards so far as recognition of their contribution towards the growth/profitability of the company.
- ◆ Aimed at encouraging individuals to take up improvement projects for capability building and for continuous improvement in every sphere of activity, **Improvement Projects Rewards Scheme (IMPRESS)**, has been introduced company-wide. The scheme is e-network based and has a very well defined, structured modus operandi.

CONTRIBUTION TO REMOTE AREA DEVELOPMENT

- ◆ BHEL has been contributing to the national effort for development of far-flung/remote areas on a sustained basis. Highlights during the year included:



'Stand-Alone' Solar Photovoltaic (SPV) power plant commissioned at Mousuni Island

- Spurred by the success of the two **'Stand-Alone' Solar Photovoltaic (SPV) power plants** commissioned by BHEL at **Mousuni Island**, WBREDA has placed orders on BHEL for setting up **five more SPV power plants in the Sunderbans**. As part of this contract, BHEL will also supply its newly developed Smart Card-based Energy Meters.
- **Solar Power Systems** have been installed for **300 police stations** in the rural belts of Karnataka. The systems are providing uninterrupted power supply for wireless systems, lighting and computers in these police stations.

DISCHARGING SOCIAL RESPONSIBILITIES

- ◆ BHEL is committed to supporting the 'Global Compact' of United Nation and the set of core values in the areas of human rights, labour standards, environment and anti-corruption. While a number of initiatives have been taken, **all major units of BHEL have achieved 'zero effluent discharge' status**. In addition, **'rain water harvesting systems' have been installed** in all major townships of the company.
- ◆ As a responsible corporate citizen, BHEL is involved in a host of Community Development programmes. During the year, BHEL continued its contribution and commitment by way of various welfare activities including medical aid, provision of streetlights and infrastructure support to schools in 56 villages, adopted by BHEL all over the country.
- ◆ BHEL and its employees once again rose to the occasion and demonstrated their solidarity with fellow citizens and victims of natural calamities which rocked the nation during the year. A total of Rs.5.85 Crore was contributed by the company and its employees, to help mitigate the suffering of the people devastated by the Tsunami and the unprecedented floods in various parts of the country.

AWARDS

- ◆ For his contribution to science and engineering, Mr. B.L. Chouksey, an employee of BHEL-Bhopal, has been conferred one of the **country's highest civilian honours — 'Padma Shri'** for the year 2005, by the President of India.

- ◆ Continuing its tradition of bagging prestigious national/international awards, the organisation and its employees won several awards during the year. Notable among these included : Vishwakarma Rashtriya Awards, National Safety Awards, EEPC's Top Export Award for the fourteenth year in succession, Safety Initiative Award of the Institution of Engineers (India), CII's Energy Excellence Award, British Safety Council's Safety Award, and the Govt. of Karnataka's Honest Tax Payer Award 2004-05.
- ◆ In addition, among Public and Private sector companies, the **highest number of eight Prime Minister's Shram Awards** have been won by 14 BHEL employees. This includes the **solitary Shram Bhushan awarded this year**, which is also the highest award in the series declared this year.

GEARING UP FOR THE FUTURE

- ◆ The Indian power sector is on the threshold of witnessing a transformation and the country is planning to add 41,110 MW by the end of the Xth Plan. Also, projects are under various stages of finalization for the XI Plan capacity addition programme of 60,769 MW. In addition, policy initiatives and other positive impulses have led to an improved investment climate in the infrastructure sector.
- ◆ In order to meet the challenges ahead, BHEL has adopted a three-pronged focus. First, the company is investing on raising its capacity to manufacture power plant equipment equivalent to 10,000 MW p.a. Second, it is pursuing introduction of new technologies, viz. 800 MW Thermal Sets, 250 MW Hydro Sets and 256 MW Advanced-Class Gas Turbines, as these are expected to give it the future edge in the market place. BHEL has also taken necessary steps to gear up to offer 300 MW/350 MW sets, wherever required. Third, in order to enhance its **competitive edge**, several integrated operations improvement strategies like Design-to-cost, Purchase and Supply management, Lean manufacture, organizing for services business, etc. are going to be pursued with vigour.
- ◆ The existing MOU between BHEL & Tata Consultancy Services (TCS) has been extended to effectively leverage domain knowledge of BHEL and the systems expertise of TCS in developing software-based solutions for power sector. The joint efforts have already resulted in the launch of the product 'PowerPac G' for better asset management in power plants. Orders for two systems were received during the year.
- ◆ An **MoU** has been signed **with Rural Electrification Corporation** to work jointly in offering solutions, along with financial packages, in the power generation sector, covering both new power generation projects and R&M of existing power Plants. BHEL has also signed an **MoU** with **Oil India Ltd.** for upgradation and refurbishment of their drilling rigs.

The above performance has been the result of collective efforts, zeal and dedication of a team of 43,567 committed employees who have been working in close co-operation with our esteemed customers, partners, vendors, suppliers, etc.

NOTE: COMPANY RESULTS FOR 2004-05 ARE PROVISIONAL, SUBJECT TO AUDIT

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