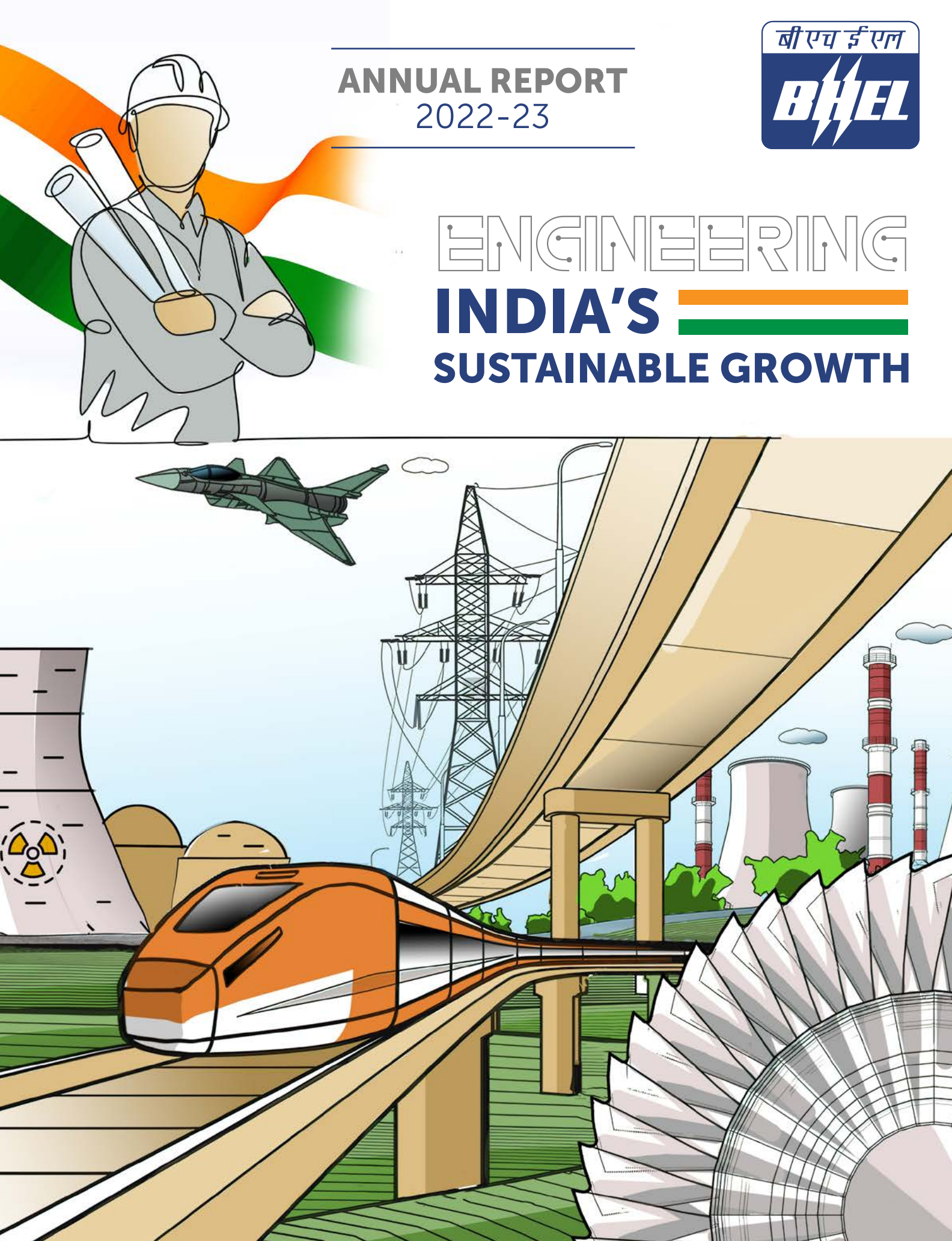


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# ANNUAL REPORT 2022-23

## ENGINEERING INDIA'S SUSTAINABLE GROWTH





## CREDENTIALS

- Making in India since 1964
- India's largest engineering & manufacturing enterprise of its kind
- One of the largest employer in the Indian Capital Goods industry
- 197 GW power generating capacity installed in India and abroad till date
- BHEL's share in country's total installed thermal generation capacity - 55%
- Pan India presence: 16 manufacturing units; 8 service centres
- Human capital base: 29,000+ strong; 8,300+ engineers



## OFFERINGS

- Power- thermal, hydro, gas, nuclear, and solar PV
- Transportation
- Transmission
- Defence & Aerospace
- Oil & Gas
- Energy Storage



## PRESENCE

- Executed 463 coal sets, 424 hydro sets, 103 gas sets, 12 nuclear sets & 60 nos. MW scale grid-connected solar PV plants across all states and 6 union territories of the country
- References in 88 countries in all 6 inhabited continents



# BHEL

Making the Nation  
**Aatmanirbhar** in  
Power & Industry

- End to end sustainable solutions for energy, industry and infrastructure segments
- Undisputed leader amongst Indian power plant equipment manufacturers
- Serving core and strategic sectors of the country
- World class technology and assets
- High level of investment on R&D and innovation in the Indian engineering field



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# Letter to Shareholders

Dear Shareholders,

It gives me pleasure to share the 59<sup>th</sup> annual report of your company, for the year 2022-23.

Overall business scenario in India has been robust with the country being one of the world's fastest-growing major economies, achieving a remarkable growth rate of 7.2% in FY 2022-23. The industrial production also witnessed a notable increase of 5.1% compared to the previous financial year. While the slowdown in the global economy and the geopolitical disturbances have had some impact on businesses, the continued expansion by domestic industries coupled with substantial investment in the infrastructure sector presents significant growth opportunities for your company.

The company has taken a number of initiatives in the areas of business diversification, project execution, technology development, quality, manpower development, etc., in recent years, which, I am happy to say, have started showing results.

While financial parameters are the ultimate yardstick of an organisation's performance, it is important to remember that the physicals are the actual drivers for the financials. Further, it is essential for any organisation, especially a large one, to build for the future, by putting in place suitable enablers for long term sustainable growth.

To this end, one of the most important changes that your company has seen in recent times is the change in operations ideology from being "Revenue Centric" to "Project Centric". The company has taken up focussed efforts in the area of project execution, including implementation of an Integrated Project Management System (IPMS), sequential despatches, advance engineering planning & action, enhanced delegation to project directors, site data digitization, etc., which have started paying off.

At the macro level, this can be seen from the fact that the company has achieved a doubling of erection tonnage at project sites over a period of three years (achieved 5.41 lakh MT in FY 2022-23) despite a declining order book and 'NIL' thermal ordering over three years between Aug'19 to Sep'22. Further, the increase in liquidation against



**Dr. Nalin Shinghal**  
Chairman & Managing Director



current year billing from 59% in FY 2018-19 to 86% in FY 2022-23 is proof of the quality of the output & billing. At a micro level, recent successes in two major projects Maitree and North Karanpura are specific cases demonstrating the outcome of these efforts. The Unit 1 of Maitree Thermal power project in Bangladesh was synchronised in August 2022 (in an overall period of 64 months, despite two waves of COVID and mass airlift of manpower from project site in between, as well as numerous border and visa related challenges). More recently, the synchronisation of Unit 2 of Maitree project was achieved on 28<sup>th</sup> June, ahead of the commitment given at a high level G2G meeting, which was accepted to be a very tough target, even at the time it was being given. Nearer home, Unit 1 of North Karanpura 3x660 thermal power plant was synchronised in Oct'22 and Unit 2 is moving towards synchronisation in Oct'23. This plant is the first utility scale power plant with Air Cooled Condensers for reducing water consumption and will result in saving of 30,500 million litres of water annually when all the three units are functioning, (this saving equals the annual need of around 1.5 million people). This ACC was commissioned by BHEL engineers despite the absence of OEM experts due to COVID related issues.

### Key performance highlights for FY 2022-23

Coming to our performance for the year gone by :

- The company achieved revenue from operations of ₹23,365 Crore as against ₹21,211 Crore during the previous year, an increase of 10% and made a profit after tax (PAT) of ₹448 Crore against a PAT of ₹410 Crore in the previous year.
- Despite increase in total receivables by nearly 9% during FY 2022-23—primarily on account of execution of projects with adverse payment terms, there is a reduction in terms of number of days of Revenue from Operations from 571 days last year to 567 days in current year and the Trade Receivables in terms of number of days of Revenue from Operations, have reduced to 102 days as against 107 days during FY 2021-22
- The company secured orders worth ₹23,548 Crore, excluding taxes, which is the highest in the last five years. The reporting of order book has been done excluding taxes for better understanding of all stakeholders, and is in line with the reporting of revenue numbers. Industry sector segment order booking is at ₹9,537 Crore – highest in last 13 years with highest-ever orders in the defence sector, which also includes the order for 20 upgraded SRGMs (main gun on Indian warships) for which BHEL is the sole supplier in the country.
- The company won the only thermal EPC order—2x660 MW, NTPC Talcher Thermal Power Plant, awarded in the

last four years, reasserting its market leadership position in the segment.

- The company recorded over 25% growth in the Spares & Services Business.
- The total outstanding order book as on 31<sup>st</sup> March 2023 stands at ₹91,336 Crore, net of taxes (PY ₹90,084 Crore). With the receipt of the prestigious order for 80 nos. "Vande Bharat" trainsets in April 2023, the total outstanding order book has crossed ₹1 Lakh Crore (excluding taxes), which is the highest in last 4 years.

In recent years, the company has twice won the ICAI Award for 'Excellence in Financial Reporting' in the 'Infrastructure and Construction Sector' category, reflecting the quality of accounting/ reporting practices.

### Going forward

Various initiatives taken at the national level, in the areas of infrastructure development and technology self-reliance, in tune with the growing aspirations of 1.4 billion people, create a range of opportunities in the capital goods as well as energy sectors for your company. The AatmaNirbhar Bharat initiative launched by our Hon'ble Prime Minister is one such initiative opening up multiple opportunities and your company has been working relentlessly to capitalise on these emerging opportunities.

In the conventional (power) sector, we are seeing a consensus emerging that, for economic development and for meeting the aspirations of our people as well as from an energy security perspective, thermal power cannot be phased out. This has brought around a revival in the thermal power sector – albeit for short to medium term—this is a breather which will further enable your company to diversify into new & futuristic businesses.

Expanding business scope in the thermal related areas, the company has made substantial progress in successfully developing in-house solution for flexible operation of coal-fired power plants (an imperative for integrating RE in the grid). The company has demonstrated the target performance parameters in the company's first order and further four orders have already been received. Issue of guidelines, for implementing flexibilisation capabilities in existing thermal sets by CEA, is expected to generate further business in this area. Spares and Services business is also picking up with focussed efforts, including long term agreements (for supply as well as services) with customers, advance procurement action/ stocking to reduce delivery times, and efforts to improve service deliveries. Efforts are on to focus on Nuclear business with MoU being signed with NPCIL and developmental efforts initiated in the area of Small Modular Reactors. The dispatch of BHEL's 44<sup>th</sup> nuclear steam generator for GHAVP (Gorakhpur Haryana Anu Vidyut Pariyojana) demonstrates

our capability in this domain. The company continues to maintain its lead position in Hydro power with the capability to design, engineer and manufacture custom-made hydro turbines & generators of various sizes up to 400 MW and offer customized R&M solutions for the vast fleet of ageing hydro turbo-generators.

As far as diversification is concerned, the company is targeting at least 50% of its business to be from non-coal businesses. The company has achieved some notable successes in this area with industry segment order book going up to 40% of total order booking in the last year with highest-ever orders in defence sector including orders for upgraded SRGM, Heat Exchangers for fighter aircraft, maiden order for supply of Li-ion batteries for AMCA (making BHEL the sole Indian supplier of Li-ion batteries for next generation aircraft), etc. Further, BHEL continues to expand its role as a reliable partner for design, engineering and manufacturing of critical equipment for the strategic sectors with range of equipment including heat exchangers, control systems, turbines, motors, generators, etc.

One of BHEL's largest orders—for supply and 35 years' maintenance of 80 Vande Bharat trainsets—received in Apr'23 in consortium with M/s TRSL, is a landmark success which will open the way for future rail business, where huge expansion and modernisation plans are being rolled out – including in areas like semi-high speed trainsets, locomotives, signalling etc.

Yet another successful business initiative has been on the coal gasification front. The need for the country to utilise its vast coal reserves (in absence of any substantial gas/ oil reserves) has been recognised at various levels. At the same time, it is also accepted that, from a climate change perspective, the country will have to adopt clean coal technologies in a major way. BHEL has leveraged on its indigenously developed coal gasification technology—the world's first proven technology for gasification of high ash Indian Coals—and completed design & engineering of the gasifier for 2,000 TPD commercial scale plant. Further process of setting up a JV with Coal India Ltd, for setting up a Coal to Ammonium Nitrate plant is in advanced stages. This will open up a major business area for BHEL under the National Coal Gasification mission announced by our Hon'ble Prime Minister.

In line with the 'National Hydrogen Mission', your company is geared up and exploring various areas in the green hydrogen value chain and is setting up a Centre of Excellence, at Varanasi. These efforts will pave the way for future scalable businesses in this area.

These diverse initiatives collectively set the ground for BHEL's long-term growth prospects in the non-coal segment. They also demonstrate your company's commitment to sustainability, reduction of carbon footprint, and contribution towards global efforts in mitigating climate change.

The company has further signed technology agreements with M/s General Electric Technology GmbH Switzerland for enhanced rights of existing /uprated and new gas turbines models, M/s Sumitomo SHI-FW for subcritical and supercritical Circulating Fluidised Bed Combustion (CFBC) Boilers capable of firing a wide range of fuels, and M/s ABB for underslung propulsion equipment for rail segment which will provide the twin benefit of garnering orders in diversified businesses from domestic and international markets as well as help make BHEL self-sufficient in state-of-the-art technologies, in times to come.

The company has also made notable progress in indigenisation and reduction on import reliance, both in its own business areas as well as for other CPSEs. For its own business, BHEL has developed in-house a number of equipment including for FGDs, etc., and has further been working with industry for supporting development by its vendors/ associates. Recent successes include development of Sucker Rod Pumps – a major requirement of the oil industry which was hitherto largely imported from China.

However, challenges still remain for the company. Rising material costs, though moderated by multiple cost optimisation efforts, continue to hurt profitability. This, combined with the fact that some of the orders currently under execution have been taken at very competitive rates, is likely to continue to hurt the bottom line in the near future. The company is continuing with strict cost control measures to deal with this situation. Going forward, new orders where cost hikes are factored in coupled with the company's efforts on improving project management and engagement of PMC for specific sites would further help improve profitability. The liquidity position of the company will continue to be constrained on account of adverse payment terms in ongoing orders and is expected to improve as these orders are substantially completed in the next two years. Delivery against these new orders obtained in recent years with continued focus on timely delivery, would further aid recovery.

### Quality First Initiative

Another major initiative taken by your company is the 'Quality First' initiative, launched in mission mode throughout the organization, for making quality a hallmark of the company's products & services being offered to the customers. Sustained efforts on this front resulted in BHEL being awarded the CII-EXIM Bank's first-ever '**Special Jury Commendation for Adoption and Nurturance of Business Excellence**', reflecting your company's dedication to fostering and embracing excellence in all aspects of operations. Additionally, BHEL units HPBP Trichy, HEEP Haridwar, HEP Bhopal, and HPEP Hyderabad have received the prestigious "Platinum" recognition while PEM Noida, EDN



Bengaluru, BAP Ranipet and PSNR Noida bagged "Gold Plus" recognition in **"CII EXIM Bank award for Business Excellence 2022"**. All 8 Quality Circle teams which participated at the 47<sup>th</sup> International Convention on Quality Control Circles in Jakarta, won the Gold awards (highest category of award), vindicating BHEL's position as the pioneer of the quality circle movement in India.

### Developing a committed workforce & leadership pipeline

Your company has been recognized as a model employer for decades and believes that a dedicated and committed workforce is the key to success of any organization. A number of initiatives have been taken in this direction including engagement of a leading consultancy organization for designing & implementing a roadmap for HR excellence. For long term succession planning, leadership development models through competency assessment have been created and curated individual development plans, etc., are being implemented. A number of efforts are also being made for enhancing employee engagement through communication initiatives, unit reach-out programs, etc. Additionally, in view of the changing business scenario, special emphasis is being given on continuous training, for making our workforce agile through unlearning, learning and relearning initiatives focused on new upcoming technologies.

### Green BHEL/Harit BHEL

Actions to mitigate climate change are of paramount importance across the globe for a sustainable future, and our country has adopted the 'Panchamrit' goals including commitment to become Net Zero by 2070. In line with our ethos as a sustainable company, we have undertaken a major initiative for "Making BHEL a Green Company" with the target of achieving Net Zero by the year 2047. In addition to making the company a model "Green Company" for the public sector, it is expected to support business performance by reducing costs and improve availability of borrowings & insurances, etc., in the long run. It would further help create a culture of innovation within the company to design, engineer and manufacture environment friendly products.

### Skill Development Initiatives

Supporting the country's commitment towards skill development as well as leveraging BHEL's capabilities and infrastructure, your company has established a Common Engineering Facility Centre (CEFC) at Welding Research Institute (WRI), Trichy (the leading welding research institution in the country) and extension centres at Varanasi, Haridwar, Bhopal, Jhansi and Ranipet with support from Ministry of Heavy Industries (MHI), to train welders. The CEFC has already trained 2,000+ welders in the first year of its inception. This initiative will not just ensure availability of skilled welders for

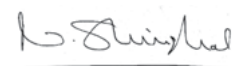
BHEL's own sites but also contribute to various sectors in the country and the neighbourhood as well, where there is currently a shortage of skilled welders. The endeavour has also been appreciated by Hon'ble Minister of Heavy Industries and the Hon'ble Prime Minister of India.

### Acknowledgement

The success of your company is only possible with the goodwill, constant support and encouragement of our stakeholders. I express my sincere gratitude to our valued customers as well as business partners for their persistent faith in our capabilities, to employees for their tireless efforts, passion and perseverance, members of Board for their guidance, and you, our esteemed shareholders, for your support and trust in the company. I would also like to thank various Ministries of Government of India, particularly the Ministry of Heavy Industries for their continuous support and valuable guidance throughout.

Your company has undertaken a journey to establish itself as a future-ready global engineering and manufacturing enterprise, and I am confident that with your support and cooperation, we will complete the same with flying colours.

With best wishes,



(Dr. Nalin Shinghal)  
Chairman & Managing Director

New Delhi  
July 28, 2023

# Leadership at **BHEL**

Board of Directors as on 20<sup>th</sup> July 2023

## FUNCTIONAL DIRECTORS



**Dr. Nalin Shinghal**

Chairman & Managing Director



**Ms. Renuka Gera**

Director  
(Industrial Systems & Products)



**Shri Upinder Singh Matharu**

Director (Power)



**Shri Jai Prakash Srivastava**

Director  
(Engineering, Research & Development)  
Addl. Charge (Finance)



**Shri Krishna Kumar Thakur**

Director (Human Resources)