

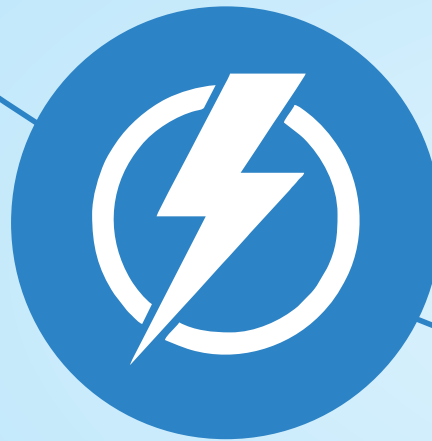


# BHEL



## Credentials

- India's largest engineering & manufacturing enterprise of its kind
- The second largest employer in the Indian Capital Goods industry
- The largest contributor to country's total installed conventional generation capacity with 53% share
- Present pan India:  
16 manufacturing units;  
8 service centres



## Offerings

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

# Making the Nation Aatmanirbhar in Power & Industry



## Presence

Executed 457 coal, 422  
Hydro, 103 Gas, 12 Nuclear  
& 54 MW scale  
Grid-connected Solar PV  
plants across all states and  
**6 union territories of the  
country**  
References in 86 countries in  
**all 6 inhabited continents**



India's flagship engineering and  
manufacturing company

Single source of sustainable  
solutions for energy, industry and  
infrastructure segments

Undisputed leader amongst Indian  
power plant equipment  
manufacturers, backed by a  
talented and skilled workforce

Serving strategic sectors of the  
country

World class technology and assets

Consistent investment on R&D and  
innovation



# Supplementing Nation's self-sufficiency *in Oxygen!*

With the second wave of the Covid-19 pandemic developing into an unprecedented crisis for the nation, BHEL rose to the occasion and worked on a war footing to supply medical oxygen and enabled the Nation to grapple with a grave situation.

BHEL's units located at Bhopal and Haridwar supplied over 5,75,000 cubic meters (i.e. over 80,000 cylinders) of medical oxygen to hospitals across adjoining states. BHEL Haridwar ramped up its cylinder filling capacity from 300 to over 3,000 cylinders per day in a record time of just one week. A 40-year-old oxygen plant at HPEP Hyderabad, shut down for more than 10 years was also revived for supplying oxygen across Telangana. BHEL also developed many innovative disinfection solutions enabling mass sanitisation of towns and cities.



Supplementing Nation's efforts to steer clear of any such crisis in future, BHEL is now manufacturing and supplying medical oxygen plants of upto 1000 LPM. Additionally, oxygen production plants are being installed in those manufacturing units which do not have such facilities.

Taking care of its employees and their families, BHEL made concerted efforts to upgrade its medical infrastructure and provide all facilities to its employees and their families across all manufacturing locations. An assistance scheme was introduced for extending support to employees who unfortunately succumbed to the pandemic.

BHEL is well on its way to ensure 100% vaccination of its employees, their families and all persons working in the company's premises across all locations.







# CONTENTS

## ANNUAL REVIEW 4

Letter to Shareholders	4
Leadership at BHEL	8
Year at a Glance	14

## CORPORATE PROFILE 16

About BHEL	16
Pan India Presence	20
World of BHEL	22
Recognition of Excellence	24

## BOARD'S REPORT 28

Management Discussion & Analysis	36
Profile and Performance of Business Segments	41
Analysis of Financial Performance	64
Corporate Governance	81
Sustainable Development	107
Business Responsibility Report	134
R&D and Technological Advancements	142

## FINANCIAL STATEMENTS 165

Standalone Financial Statements	166
Consolidated Financial Statements	236

## ADDITIONAL INFORMATION 319

Financial Performance Trend	320
Year-wise Capital Expenditure	323
Value Added Statement	323
Product Profile	324
Glossary	331

## NOTICE 335

# Letter to Shareholders



Dr. Nalin Shinghal  
Chairman & Managing Director

**“ BHEL is on its journey to transform itself into a vibrant and growing Global Engineering Organization ”**

## Dear Shareholders,

The past year has indeed been a year of great challenge with the COVID-19 pandemic affecting economies across the globe, including the Indian economy. The pandemic also seriously affected your company's performance. However, your company has shown resilience in dealing with the situation and supplemented the national efforts while at the same time worked towards strengthening its own foundations for long term growth.

From the initial days of the pandemic itself, your company has been at the forefront in ensuring safety and well-being of its employees, their families and supporting the society at large. This continued in the second wave as well, with the company supplying over 5,75,000 Cu Mtrs, i.e., over 80,000 cylinders of medical oxygen. BHEL was, in fact, the major source of emergency medical oxygen for Uttarakhand, Western UP, city of Bhopal, etc., which resulted in saving many lives. We have further developed and supplied medical oxygen plants for hospitals, in collaboration with CSIR-IIP, in record time. Your company also developed and manufactured disinfection equipment for mass sanitization of towns and cities, and upgraded company's hospitals and dispensaries. In keeping with its ethos as a caring company, BHEL introduced an assistance scheme for taking care of families of employees who unfortunately succumbed to the pandemic.

While the second wave of COVID has hit the country and your company hard, BHEL has taken steps for ensuring rapid recovery of operations and made efforts for mitigating effects of any further waves by taking steps to make workplaces COVID compliant as well as an extensive vaccination campaign at its units as well as project sites. The company is making efforts to ensure vaccination of not just employees and their families, but also of all persons working in these premises. To avoid any stoppage of work due to non-availability of oxygen (as happened in the second wave) as well as to support the community at large, in case of any future eventuality, we are additionally installing oxygen generation plants in those units which do not have oxygen production facilities at the moment.

## Key performance highlights

Disruptions caused by the first wave of COVID had serious repercussions on the company's operations, both in the manufacturing units as well as at project sites. While all

efforts were made to subsequently resume activities at normal levels, the impact is visible in the annual results.

- Your company secured orders worth ₹13,472 Cr despite the sluggishness in ordering by customers on account of COVID related uncertainties. Your company has booked its highest ever orders in hydro power segment and was also successful in retaining its leadership in engineering and manufacturing of equipment for nuclear power and emission control business.
- Your company has won its first order for Sulphur Recovery Unit (525 TPD) from IOCL Paradip, and its successful completion will establish BHEL as an LSTK player for process packages in upcoming opportunities in the Downstream Oil & Gas sector.
- The company recorded a turnover of ₹16,296 Cr with a net loss of ₹2,717 Cr in 2020-21. The loss includes an additional merit based provisioning of about ₹1,800 Cr. made after detailed review of receivables, on an exceptional basis, which was taken up by the company as a measure of utmost financial prudence, so as to strengthen receivables management process and improve quality of assets in the balance sheet. Further, the loss has been exacerbated due to non-productive expenses during the COVID period (salaries/ expenses for which there was no production)
- Your company has taken a major initiative for change of strategy from Revenue Centric to Project Centric operations, which have impacted the revenues in the short term but will lead to timely completion of projects and improvement in customer satisfaction, as well as significantly improve long term business prospects.
- Concerted efforts for cash collection resulted in liquidation of 82% of the current year billing, which is the best in the last 10 years and the company achieved a cash surplus of ₹383 Cr. in FY 2020-21 as against a deficit of ₹3,587 Cr. in previous year.

**Improved execution coupled with concerted efforts for cash collection resulted in the company being cash surplus in FY 2020-21 as against a deficit of ₹3,587 Cr. in previous year**

### Economic & business environment

After the pandemic induced contraction, domestic economic activity is normalizing with the ebbing of the second wave of the virus and the phased reopening of the economy. Several high-frequency indicators, viz., registration of automobiles, electricity consumption, non-oil non-gold imports, consumer

durable sales and hiring of urban workers suggest that the consumption, investment and external demand are regaining traction.

Investment demand still remains weak. However, improving capacity utilization, rising steel consumption, congenial monetary and fiscal policies and the economic packages & other measures announced by the Government are expected to kick-start a long-awaited revival.

Although ordering for new coal-based power generation equipment remains weak, demand for emission control business is strong and growing. Growth in urban mobility in rail transportation sector, thrust on indigenization in defence & aerospace sectors, and expected expansion in oil & gas sector will continue to present new opportunities. The AatmaNirbhar Bharat Initiative of the government is also creating multiple opportunities for the company.

### Future perspective

While the challenges continue, the situation is also throwing up a number of opportunities. The company believes that timely & high quality delivery of products & projects, aggressive efforts in emerging technologies, collaborative working with government, PSUs, private industry, R&D institutions and academia will be the foundations for building a strong future. In this situation, the company has set out to reinvigorate itself by following a two pronged strategy:

- a. in the short run, complete & close projects expeditiously which will also result in release of cash to meet its operations; expand existing conventional business through enhanced efforts in pollution control systems, spares & services; strengthening of IT and technology base; rebuilding a Quality First culture across the organization; and vigorous cost cutting for achieving business growth in a competitive environment and
- b. in the long run focus on regaining technology leadership and strengthening diversification initiatives.

The past year has been a year of consolidation for the company, wherein a number of initiatives taken up in the previous year have come to bear fruit and are playing a vital role in efforts towards building a BHEL of the future. The company has focused on revamping project execution through successful implementation of the IPMS (Integrated Project Management System) supplemented with the ongoing Site Data Digitization project, ensuring sequential dispatches, closure of punch points, and switching over from Revenue Centric to Project Centric philosophy.

The company has worked aggressively towards realizing its pending dues through taking up issues at multiple levels with the state and central governments and taking required



measures for limiting exposure in projects where payments are not being received. This has resulted in stabilizing of the cash situation, with the company becoming cash surplus in 2020-21 despite a net loss of ₹2,717 Cr.

Your company has embarked on a journey for making BHEL a digitally enabled organization for improving the overall efficiency of the organization manifold as well as to utilize IT for revenue growth. We have achieved full switch over to e-office, a major step towards a paperless office, and introduced secure Work From Home facility to ensure seamless work during lockdowns. Multiple initiatives for introducing IT solutions on the shop floor and work places, for project execution, quality checks, etc., are under various stages of implementation.

Ensuring quality of products and services is a critical success factor in today's business environment. Towards this end, a companywide 'Quality First' initiative was launched in the previous year with focus on inculcating a quality mindset in all spheres of company's activities. Though the true impact of any major quality initiative is usually visible only in the long term, initial successes include Platinum recognition in CII EXIM Bank Awards for Business Excellence 2020 for BHEL's Haridwar unit - received after a gap of 14 years and the 'Golden Peacock National Quality Award' for the year 2020.

In line with its efforts for achieving profitable growth, the company has also created a Cost Optimization Group to identify scope for cost cutting in every aspect of its operations. The slew of cost reduction efforts by the company cover design, procurement, overheads, inventory control, logistics, budgetary controls among others.

Your company is cognizant of the ongoing energy transition and subdued economic growth in its current areas of operations. Accordingly, definitive steps are being taken both for maintaining growth in the existing portfolios as well as targeting opportunities in the new, non-coal based businesses. As a result, the company retained its dominant position in the nuclear, hydro and thermal emission control businesses, booking highest-ever orders of more than ₹3,000 Cr. in hydro sector, maintaining market leadership as the sole Indian supplier of nuclear steam turbines in the nuclear sector as well as retaining highest market share in the FGD and SCR segment. Company's efforts towards increasing contribution of non-coal business are also bearing fruit with the receipt of first order in the downstream oil and gas segment. Further, concerted efforts are also being made for developing a range of new products, systems and solutions for railways, urban mobility, defence, aerospace, among others.

In the long term, the company is targeting to regain its technology lead by investing in technologies of the future including various elements of the Hydrogen economy (generation, storage, utilization), for which a separate business vertical has been created. This business group is tasked with the objective of identifying opportunities for BHEL, in the Hydrogen economy, and to take up technology, manufacturing as well as business development efforts for the same, on fast-track basis. We believe that, going forward, Additive Manufacturing is going to disrupt all areas of manufacturing for which another team has been set up to identify early opportunities in this area. Other areas where dedicated teams have been deployed are Industry 4.0 solutions for process industries (remote monitoring & diagnostics, spares & services business, IIoT for internal operations), Coal to Methanol, Upstream Solar Value Chain, and Battery Energy Systems.

---

From a long term organisational & national perspective, BHEL is working on futuristic technologies such as Hydrogen economy, Additive Manufacturing, Industry 4.0 solutions, Coal to Methanol, Upstream Solar Value Chain, and Battery Energy Systems

---

However, existence of vast coal reserves in the country and imperatives to keep imports under control, coupled with the need to retire old generating sets which have lower efficiency, higher pollution and are at end of life stage, are expected to lead to opportunities in the thermal sector in the medium to long term, with focus on environment friendly clean coal technologies including gasification/ Coal to Methanol, Carbon Capture, etc., which your company is poised to capitalize upon. The successful completion of more efficient and greener Advanced Ultra Supercritical (AUSC) technology is a step in this direction and will further reinforce our technological prowess in the thermal business.

Keeping with our philosophy that employees are the biggest assets of our company, a number of initiatives for re-skilling of the workforce, leadership development, strengthening of internal communication and knowledge sharing, simplifying policies and various digital-enabled workplace solutions are being implemented for better productivity and engagement of employees.

These efforts will support your company in its journey to transform itself into a **vibrant Global Engineering Organization.**



### Capitalizing opportunities under the AatmaNirbhar Bharat initiative

The present geopolitical situation and the AatmaNirbhar Bharat initiative give us an opportunity to again take the lead in manufacturing in the country – albeit in different products & technologies – which would be more relevant to the India of the future.

A number of steps have been taken in this direction through formation of Make In India Business Development Group which is targeting to indigenize 50% of our manufactured imports (excluding those under technology collaboration agreements) in the near term, partnering with other PSUs for indigenous development of items imported by them, as well as in-house development and manufacture of major items in the country's engineering imports basket. Through these efforts BHEL is already getting developmental orders from various customers, providing twin benefit of increasing capacity utilization of the company as well as help reduce imports in the country. In addition, your company is also working closely with local industries / suppliers to develop their capabilities and thus replace imports.

---

**BHEL is focusing on capitalizing opportunities under the AatmaNirbhar Bharat initiative providing twin benefits of increasing capacity utilization as well as helping reduce imports in the country**

---

### Acknowledgement

The company is steadily moving forward on its various initiatives despite the numerous challenges it faces which would not be possible without the support of various stakeholders. I would like to express sincere thanks and gratitude to our valued customers as well as other business partners for their continued confidence, our employees for their engagement, passion and perseverance, members of the Board for their guidance, and you, our esteemed shareholders for your support and trust in the company. I would like to thank various Ministries of Government of India, particularly the Ministry of Heavy Industries for their valuable guidance and support in all our endeavours.

I am confident that multiple initiatives currently under implementation will help us to overcome the immediate challenges and build a strong base for long-term sustained and profitable growth of your company.

With best wishes,



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

New Delhi  
August 27, 2021

# Leadership at BHEL

Board of Directors as on 25.08.2021



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

## Functional Directors



**Shri Subodh Gupta**  
Director (Finance)



**Shri Anil Kapoor**  
Director  
(Human Resources)

Addl. Charge of Director (Power) w.e.f. 01.02.2021



**Ms. Renuka Gera**  
Director  
(Industrial Systems & Products)

Addl. Charge of Director (Engineering, R&D) w.e.f. 01.08.2021