SUSTAINABILITY REPORT 2019-20







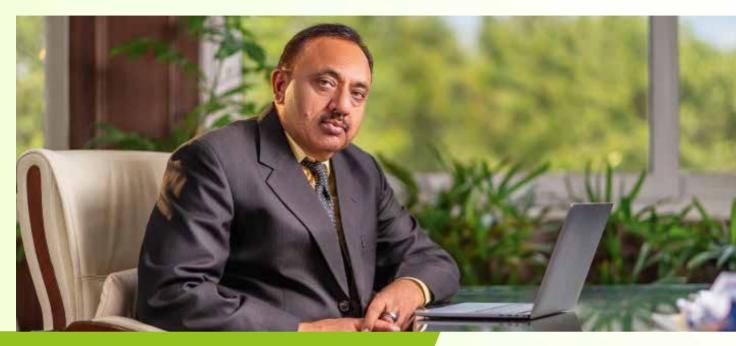
SUSTAINABILITY REPORT 2019-20



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MESSAGE FROM DIRECTOR

(HUMAN RESOURCES)

Dear Stakeholders,

Sustainability for BHEL is a continuous journey which helps us in reaching newer summits of corporate excellence through implementing corporate governance framework. sound enhancing stakeholder value. reducing environmental footprint of our products & services as well as internal processes, promoting inclusive growth in the society, and enhancing brand equity. As an organization, we believe in engaging with all our stakeholders in a structured manner and take them along on the path of sustainability.

BHEL manages its environmental impact across the entire manufacturing value chain in a responsible manner. Internally, various initiatives are in place to optimally manage key aspects such as material, water, energy, emissions, biodiversity etc. in the larger interest of society. In addition, we also facilitate our customers in managing their environmental and social impacts throughout the entire operational lifecycle of the power plants by

offering them state-of-the-art engineering and technology inputs for reducing greenhouse gas emissions - as well as water consumption, better heat rate, less auxiliary power consumption with less fuel requirement.

As we all are aware, entire world is combating with the COVID-19 pandemic, which has far reaching consequences on societies, economies and businesses across the globe. The pandemic has shaken the entire world order and tested the sustainability model of the businesses. BHEL has undertaken various steps to deal with COVID-19 situation and responded with agility to minimize the impact on its stakeholders. BHEL has also risen to the occasion to support the national efforts on COVID-19 through monetary contribution of Rs. 15.72 crore to PMCARES fund as well as through development of multiple products for in-house use and by various govt. departments / municipalities. BHEL has provided support to local communities in every possible way.

To ensure business sustainability in view of current business scenario, BHEL is transforming



itself from being a primarily Power Sector player to a Global Engineering Enterprise through focusing on technology and business driven R&D, strengthening quality culture, improving pace of execution, empowering and skilling people, and taking up diversification activities. A number of initiatives were taken by the company in new business areas like transportation, defence & aerospace, energy storage business, amongst others, which are expected to improve the performance in years to come. BHEL has firmly established itself as the leader in the domestic emission control equipment market with the largest market share. The company till date has secured orders for 63 Flue-Gas Desulphurisation units and 11 Selective Catalytic Reduction units in India and abroad.

BHEL has traditionally been a leader in technology through focused R&D and has been the highest R&D spender in capital goods sector in India (~3.8% of the turnover in FY 2019-20). A number of initiatives have been launched for indigenization of items and development of core technical competencies. BHEL is working on greener technologies which are projects of national importance such as installation of India's highest efficiency thermal power plant based on Advanced Ultra Supercritical Technology (AUSC) in collaboration with NTPC, pilot plant for conversion of high ash coal to methanol and high efficiency PERC cells amongst others. Amongst other achievements, BHEL has also commissioned 1.7 MW_p Solar PV Plant at Bina for Indian Railways, which is a landmark achievement in the history of solar power, as this is world's first solar project feeding solar power directly to the traction system.

In-house, BHEL has established a total of 28 $\rm MW_p$ of Solar Photo Voltaic (SPV) power plants including rooftop & ground based SPV systems, solar water heaters, solar street lighting, etc., resulting in generation of 32.43 million units of green electricity and resulting carbon footprint

avoidance of 31,130 MT CO₂-e during 2019-20. The company has also undertaken a number of projects related to water and energy conservation, tree plantation, waste management, resource conservation, etc. As a step towards fulfilling our commitment to fight plastic pollution, all townships of BHEL are certified as 'Single Use Plastic Free' zones after audit by an external agency. During 2019-20, more than 36,000 trees were planted across the premises of HEP Bhopal unit and overall more than 55,000 trees were planted across BHEL premises to add to its green cover.

With a strong commitment of repaying the society at large, BHEL actively contributes towards socio-economic upliftment of the people in villages and communities located in the vicinity of its manufacturing plants and project sites spread across the country. Continuing the tradition of securing prestigious national and international recognitions, the organization and its employees have won several awards during the year. Recognizing the efforts of the company towards health and safety of its employees, the company was awarded with nine National Safety Awards for outstanding achievements in terms of the longest accident-free period and lowest accident frequency rate.

I am happy to place before you our annual Sustainability Report for 2019-20 which has captured the journey of our organization towards the path of Sustainable Development for the reporting period 2019-20 and would like to appreciate the efforts put in by the entire team for making this report.

With best wishes,

Yours Sincerely,
(Anil Kapoor)







BHEL-Making the Nation self-reliant in Power & Industry

CREDENTIALS



India's largest engineering & manufacturing enterprise of its kind



The second largest emplloyer 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



Oil & Gas



Transportation



Industry



Transmission



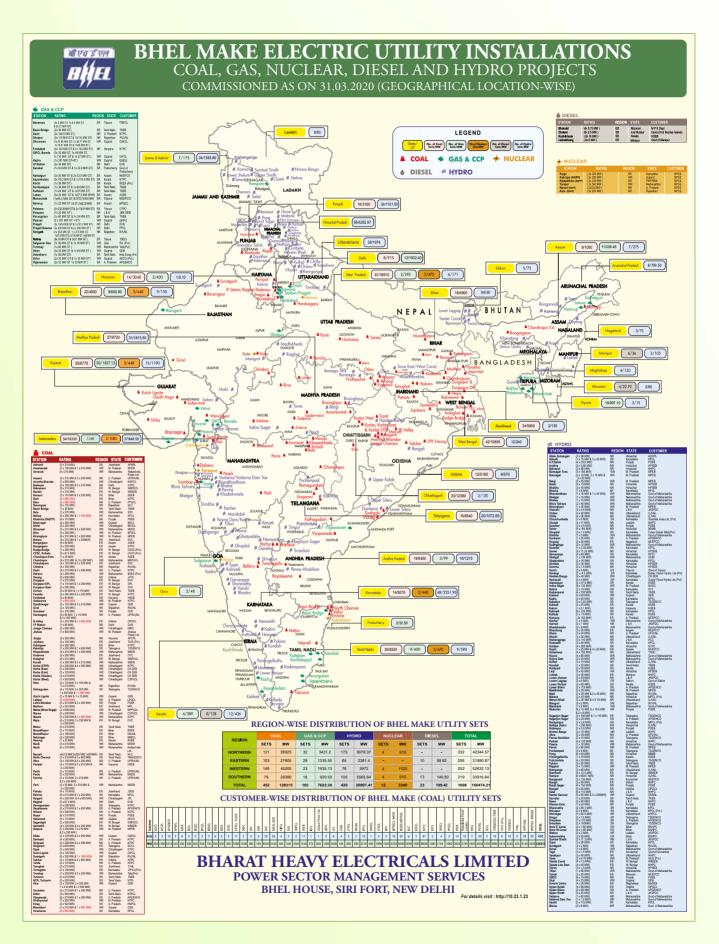
Energy Storage



Defence & Aerospace



Water







ORGANISATIONAL PROFILE

About the Organisation

Established in 1964, BHEL has been one of the earliest and strongest contributors towards a strong and Aatmanirbhar Bharat. BHEL is India's largest engineering and manufacturing enterprise in the energy and infrastructure sectors and a leading power equipment manufacturer globally. We serve our customers with a comprehensive portfolio of products, systems and services in the areas of power-thermal, hydro, gas, nuclear & solar PV, transmission, transportation, defence & aerospace, oil & gas, and water.

BHEL's commitment to attaining the vision of a self-reliant India manifests in many ways- in its contribution to the country's installed power generation capacity; bringing the latest state-of the-art technology to the country; consistent highest expenditure of more than 2.5% of its turnover on R&D and innovation in the Indian engineering segment; pan-India presence; establishment of world-class assets, and creating sustainable business solutions and contribution to the society at large through initiatives in skilling youth, health & hygiene, education, cleanliness and environment protection, among others.

The force behind driving the outcomes at BHEL and ensuring success is BHEL's resilient workforce, supported ably by efficient processes and innovative enablers. A team of more than 33,500 empowered employees stands strong, focused on driving the businesses of today as well as the future.



The World of BHEL



A global engineering enterprise providing solutions for better tomorrow



Providing sustainable business solutions in the fields of Energy, Industry & Infrastructure





A National Institution

- One of the largest engineering & manufacturing companies in India serving core sectors of the economy
- Pan India presence with 16 Manufacturing Units and 150+ project sites globally



Energizing India

- 190+ GW power generating equipment installed in India and abroad
- 18,000+ MW Captive Power Plants commissioned
- ◆ 1.2+ GW total solar portfolio
- BHEL manufactured equipment constitutes 55% of thermal power generation capacity, 47% of nuclear power generation capacity (secondary side) and 45% of hydro power generation capacity in the country



- Footprints in 84 countries
- 11 GW power generation capacity built outside India; 6 GW under execution
- ◆ 4 x 180 MW Mangdechhu HEP, Bhutan has the highest rating vertical Pelton turbine supplied by BHEL outside India



ooo Did you know?

- ◆ BHEL indigenously manufactured world's heaviest IP Turbine casing (20 T, lower part) of alloy 625 for AUSC application
- ♦ BHEL commissioned first-of-its-kind 1.7 MW SPV plant supplying power directly to traction grid of Indian Railways at Bina, Madhya Pradesh
- ◆ BHEL supplied the largest pump-motor sets in India (ranging from 106 MW to 139 MW) totalling to 2,747 MW for Kaleshwaram project world's largest multi-stage lift irrigation scheme
- First air-conditioned local train of Central Railway put in passenger service from Thane to Panvel on in Jan 2020 has been manufactured by BHEL and ICF
- BHEL commissioned country's highest rating lignite based 500 MW Neyveli TPP in 2019-20
- ◆ Fancis turbine manufactured by BHEL for Kameng 1 & 2, largest rating hydro power projects in Arunachal Pradesh operates at rated head of 501 meters-highest in the country
- ◆ BHEL has commissioned 200+ electric Substations across the country till date



Unparalleled contribution in core sectors

- 6,40,000+ MVA transmission equipment supplied
- ♦ 32,000+ AC machines supplied
- 730+ Locos supplied to Indian Railways
- 400+ Compressors supplied and
 90 Oil drilling Rigs-Supplied
- 12,000+ Well Heads & Christmas Tree valves supplied for Indian Navy ships
- ♦ 40+ Super Rapid Gun Mount supplied for Indian Navy ships





Powering Progress... Brightening Lives



Technology for a sustainable future

- In house development of Advanced Ultra Supercritical (AUSC) and Coal to Methanol technologies progressing
- Spearheading the development, installation and indigenisation of emission control equipment for coal based power plants in India
- Carbon footprint avoidance of nearly 31,130 MT of CO₂- equivalent through in-house 28 MW_p solar power installations
- 12 townships of BHEL units declared as "Single Use Plastic Free"
- Developed efficient EHV Transmission systems and products (including ± 800KV HVDC)

Innovation



- R&D Expenditure consistently
 >2.5% of Turnover-highest in
 Indian engineering field
- Collaborative R&D with leading academic institutions & research organizations
- Five research institutes; 14
 Centres of Excellence
- In-house R&D Centres of
 12 Manufacturing units &
 Divisions recognized by DSIF

Growing with society



- Committed to Principles of UN Global Copact
- Signatory to Integrity Pact of Transparency Internationa India (TII)
- Active contributor to Healthy India, Educated India, Green
 India and Clean India
- BHE Trichy, home to over one million native trees, is creating one-of-its-kind BHEL Vann, to preserve native trees and increase the green cover further by planting half a million trees by 2022
- Certificate of Appreciation for exemplary work in Skill Development from the Govt. of India, 2019-20



Valuing people

- Committed workforce, more than 33,500 strong
- → ~2000 Female employees
- ♦ 9000+ Engineers
- Participative management culture since 1973



Making In India since 1964

The company's Pan-India presence includes a network of 16 manufacturing facilities, 2 repair units, 4 regional offices, 8 service centres, 1 subsidiary, 3 active joint ventures, 15 regional marketing centres, 4 overseas offices and current project execution at more than 150 project sites across India and abroad. BHEL manufactures a wide range of high quality & reliable products adhering to national and international standards.

The worldwide installed base of power generating equipment supplied by BHEL exceeds 190 GW, making it the undisputed leader amongst Indian power plant equipment manufacturers. Having installed more than 1000 thermal, hydro, nuclear, gas and solar PV based power generating sets in the country, BHEL is now building strong foundations for cleaner and greener energy usage in future.

BHEL has a widespread footprint in all the inhabited continents of the world with references in 84 countries including the neighbouring countries of Bangladesh, Afghanistan, Bhutan, and Nepal, Indonesia, Oman, Iraq, Sudan, Afghanistan, United States and New Zealand. Till date, BHEL has installed around 11 GW power generating capacity in overseas markets. An additional 6 GW is under execution, including the 2x660 MW Maitree Super thermal power project in Bangladesh and 4x225 MW Arun-3 Hydroelectric project in Nepal.

For BHEL's product profile, readers may refer to BHEL's Annual Report 2019-20 page 327-333 which can be accessed through the web link https://www.bhel.com/annual-report-2019-20.

For the details of profile and performance of different business segments of BHEL, the readers may please refer to BHEL's Annual Report 2019-20 page 34-57.



RFCL Ramagundam CPP with 32.5 MW rating Gas Turbine along with Utility Boiler and Heat Recovery Steam Generator under commissioning by BHEL in Telangana









08 Service Centres



Business Offices



150+
Project Sites in India & abroad



04Regional Offices



02Repair
Units

Manufacturing Plants / Unit Locations

		1. Electronics Division (EDN)
	Bengaluru	2. Electronics Systems Division (ESD)
		3. Electric & Photovoltaic Division (EPD)
	Bhopal	4. Heavy Electrical Plant (HEP)
	Goindwal	5. Industrial Values Plant (IVP)
		6. Heavy Electrical Equipment Plant (HEEP)
	Haridwar	7. Central Foundry Forge Plant (CFFP)
BUE! M. 6	Hyderabad	8. Heavy Power Equipment Plant (HPEP)
BHEL Manufacturing Units	Jagdishpur	9. Fabrication Stamping Insulator Plant (FSIP)
	Jhansi	10. Transformer Plant (TP)
	Rudrapur	11. Component Fabrication Plant (CFP)
	Ranipet	12. Boiler Auxliaries Plant (BAP)
		13. High Pressure Boiler Plant (HPBP)
	Tiruchirappalli	14. Seamless Steel Tube Plant (SSTP)
	Thirumayam	15. Power Plant Piping Unit (PPPU)
	Visakhapatnam	16. Heavy Plates & Vessels Plant (HPVP)
DUEL Description	Mumbai	1. Electrical Machine Repair Plant (EMRP)
BHEL Repair Units	Varanasi	2. Heavy Equipment Repair Plant (HERP)
BHEL Subsidiary	Kasaragod	1. BHEL Electrical Machines Ltd. (BHEL-EML)

Human Resource

BHEL's greatest strength is its team of 33,752 employees (as on 31.03.2020) who are empowered and are focused on driving the businesses of today as well as the future. It is the second largest employer in the capital goods industry having more than 9000 engineers as a part of its committed workforce.

Supply Chain of BHEL

BHEL has been supporting Micro and Small Enterprises (MSEs) and local suppliers in and around manufacturing units from various fronts. They are part of BHEL's supply chain. Also, as mandated in Public Procurement Policy for Micro and Small Enterprises (MSEs) Amendment Order, 2018 for MSEs (issued by Ministry of MSME-Gol), 25% of BHEL's total procurement is from MSEs during 2019-20. Regular vendor meets and supplier development programs are organized by BHEL units, specifically for MSEs (including local suppliers) as well as specific to SC/STs, which serves as a platform for identification of needs and formulation of action plan for mutual benefits. There have not been any significant changes in supply chain of BHEL during the reporting period.

Policy Advocacy

BHEL is a member of many industry and trade bodies. For more details about our policy advocacy, the reader may please refer to page 138 of BHEL's Annual Report 2019-20 available on www.bhel.com.

Precautionary Approach

BHEL has a well-established Environmental Management System (EMS) accredited to ISO 14001:2015 in all major manufacturing units and Power Sector regions. The EMS provides an excellent framework to proactively identify and manage the risks related to environment in a systematic manner. HSE cells at all BHEL units as well as Power Sector regions oversee the implementation of HSE policy supported by Corporate HSE department at apex level to

provide strategic guidance. Periodic audits are carried out by the certifying body to ensure the compliance to the EMS and requirements of ISO 14001:2015 are met. The company's Health, Safety & Environment (HSE) policy is available on the internet and can be accessed through the web link https://www.bhel.com/sites/default/files/HSEPOLICY.pdf

Ethics, Transparency & Accountability

The company has a Board approved 'Code of Business Conduct & Ethics' for all Board Members and Senior Management personnel in compliance with the requirements of DPE Guidelines on Corporate Governance for CPSEs and SEBI's Listing Regulations.

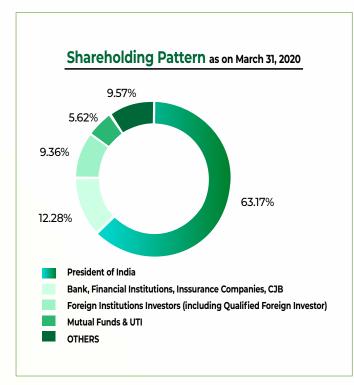
https://www.bhel.com/sites/default/files/BHEL-Code-of-Business-Conduct-and-Ethics-w-e-f-01-04-2019.pdf

For more details about this topic, the reader may please refer to page 134 of BHEL's Annual Report 2019-20.

BHEL has signed MoU with Transparency International India (TII) to adopt 'Integrity Pact' to make procurement and contracting more transparent by binding both the parties to ethical conduct. A panel of two Independent External Monitors (IEMs) has been appointed to oversee implementation of Integrity Pact in BHEL, with due approval of Central Vigilance Commission. Within BHEL, accountability is well defined for various functionaries through 'Delegation of Power'. Works Policy, Purchase Policy and other policy documents facilitate transparency in BHEL's working and commitment of highest order of integrity.

Eight representations received from suppliers during 2019-20 under Integrity Pact have been resolved by the IEMs. The Company has a Stakeholders Relationship Committee specifically to look into matters related to redressal of shareholders and investors complaints. As reported by KFin Technologies Private Limited (Registrar & Share Transfer Agent of the company), 949 complaints were received





from the shareholders during the year under review and all complaints were redressed by 31st March, 2020.

In addition, a total of 258 public grievance complaints were received from the general public under the Centralized Public Grievance Redressal and Monitoring Scheme during the year 2019-20. All the grievances were satisfactorily resolved.

Nature of Ownership and Legal Form

The Government of India is the majority shareholder of BHEL. The shareholding pattern as on 31.03.2020 is given in the diagram. For the details about shareholding pattern and changes in the shareholding pattern during 2019-20, reader may please refer to BHEL's Annual Report 2019-20 page 89.



BHEL supplied and commissioned India's largest Pump motor sets for Kaleshwaram lift irrigation projectworld's largest multi-stage LIS project on the Godavari river in Kaleshwaram, Telangana

CORPORATE GOVERNANCE

Corporate Governance

For the details about Corporate Governance, the reader may please refer to page 74-81 of BHEL's Annual Report 2019-20.

Diversity and Inclusivity

BHEL is a pan India Organization and recruitment is open to all eligible candidates irrespective of States and communities. The overall representation of SC/ST/OBC employees in total manpower as on 31/12/2019 was 20.56%, 7.27% and 34.25% for SCs, STs and OBCs respectively. The percentages in direct recruitment during the year 2019 were 14.47%, 7.24% and 25.00% for SCs, STs and OBCs respectively.

Although the candidates who join BHEL belong to different demographics in terms of qualifications, culture, location, religion etc., BHEL ensures technical and cultural fitment of these candidates as per our Vision Mission Value statement.

BHEL's Recruitment Policy is completely in line with various government directives issued from time to time on the matters of recruitment and non-discriminating recruitment practices in terms of caste/gender/handicap or religion.

Feedback Mechanism

Shareholders can raise queries, interact with Board members and provide suggestions at the General Meeting(s) of the Company. The shareholders can provide recommendations and suggestions to any Director on the Board of BHEL. Contact details are available on the website of the

Company (www.bhel.com). Further, shareholders have a dedicated email-id viz. shareholderquery@ bhel.in to communicate with the Company.

Risk Management Framework

BHEL has in place a Board approved Risk Management Charter & Policy which provides overall framework for Risk Management in the company. The objective of the charter is to ensure that the risks are being properly identified, assessed and effectively managed by adopting suitable risk mitigation measures. The company has 3-layer risk management framework. At the first level, the Board Level Risk Management Committee (BLRMC) of the company is assigned with responsibility of reviewing the company's Risk Governance structure, Risk Assessment & Risk Management framework, Guidelines, Policies and Processes thereof. Risk Management Steering Committee (RMSC) at the second level is responsible for adopting & implementing the risk management framework and leading the risk management initiative across the company.

Chief Risk Officer (CRO) being the convener of BLRMC & RMSC is responsible for periodic reporting on risk management to Board/BLRMC. Key risks being faced by the company are analysed starting from Unit level for their respective areas to prepare risk mitigation plans and to ensure implementation.

Some of the key risks the company faces and corresponding strategies for mitigation are mentioned in the table below:





Risk Statement	Mitigation Strategies
Online data & information security breach leading to loss and critical information infrastructure breakdown	 All Internet gateways are integrated into Cyber SOC (Security Operations Center) which enables monitoring of all internet traffic. Integration of Trend Micro Control Manager (TMCM) into Cyber SOC has provided centralized, user-based security management, which created a holistic view of the company's security posture. Consolidation of Internet Gateways to minimize chances of data leakage points. Integration of ISMS, for improved compliance & cyber security, enforcement of common policies, procedures & formats.
Excess domestic manufacturing capacities, changes in business mix due to policy changes and increasing competition leading to lower order book	 Invitation to Global OEMs to Leverage BHEL's Facilities and Capabilities to 'Make in India'. Focus on development of non-coal based business. Strategic tie-ups for venturing into new areas.
Technology readiness to meet current / future market requirements	 In house development of new products / technologies Technology collaboration agreement with suitable partners
Rising debtors	 Constitution of Cross Functional Teams for improved cash realization from every element of debts against ongoing as well as commissioned projects. Constant review of debtors and provisions by the management. Swift closure of punch points with customers. Flagging issues with government in case of state utilities.

Stakeholder Identification & Engagement

There has been no change in our stakeholder identification and engagement w.r.t. previous report. For details of the same, readers may please refer to page 12-14 of BHEL's Sustainability Report 2018-19.

Reporting Practice

BHEL follows the practice of publication of its annual Sustainability Report. BHEL's

Sustainability Report for 2019-20 is available on **www.bhel.com**. The following entities are included in the consolidated financial statement of BHEL:

- 1. BHEL-GE Gas Turbine Services Pvt. Ltd.
- 2. Raichur Power Corporation Limited
- 3. NTPC-BHEL Power Projects Pvt. Ltd.

For details about the same, the reader may kindly refer to BHEL's Annual Report 2019-20. The present sustainability report captures the brief snapshots of our journey traversed while

treading the path of Sustainability during 2019-20. The data on environmental standard GRI 301: Materials includes material use at the project sites also. However, for all other aspects, the report is limited to the manufacturing units as shown in the figure captioned "Reporting Boundary for Environmental Indicators". At project sites, our projects are under various stages of execution and as of now except data capturing for material, other environmental aspects are not being monitored and controlled in a robust manner.

The data for the aspects other than Environment includes the data for entire BHEL setup (excluding JVs and subsidiaries). The report has been prepared in accordance with GRI Standards with comprehensive option. No external assurance has been sought from any agency for BHEL's Sustainability Report 2019-20.

For any clarification / suggestion on the report the reader may please write to corphse@bhel.in



Work in progress for Kaleshwaram lift irrigation project



OUR ECONOMIC PERFORMANCE

Management Approach - Economic

Economic growth continues to be subdued, both globally as well as domestically. With a GDP growth of 4.2% in 2019-20 against 6.1% during the previous year, the Indian economy witnessed decline in industrial production, power and consumption demand.

The protracted impact of the outbreak of COVID-19 pandemic internationally, and geopolitical developments in many parts of the world have further deepened the crisis. Government of India has launched many initiatives intended to improve financial liquidity, increase industrial activity by promoting self-reliance in manufacturing, and support agricultural sector, for bringing economic growth back on track.

Amidst this, uncertainty in business environment continues to throw up short term as well as long term challenges. BHEL is transforming itself into a Global Engineering Enterprise, with strict quality and cost controls, and focusing on various transformation initiatives – building and maintaining profitable growth by maintaining leadership in the core business in the short term and diversifying by harnessing emerging opportunities in the long term. Identification and implementation of strategies in new growth areas is one of company's topmost priorities. Our efforts are focused towards a successful transformation, while continuing to be at the core of self-reliance in engineering and manufacturing in India.

As a responsible global citizen, the organization acknowledges the relation between Green House Gas (GHG) emissions and climate change.

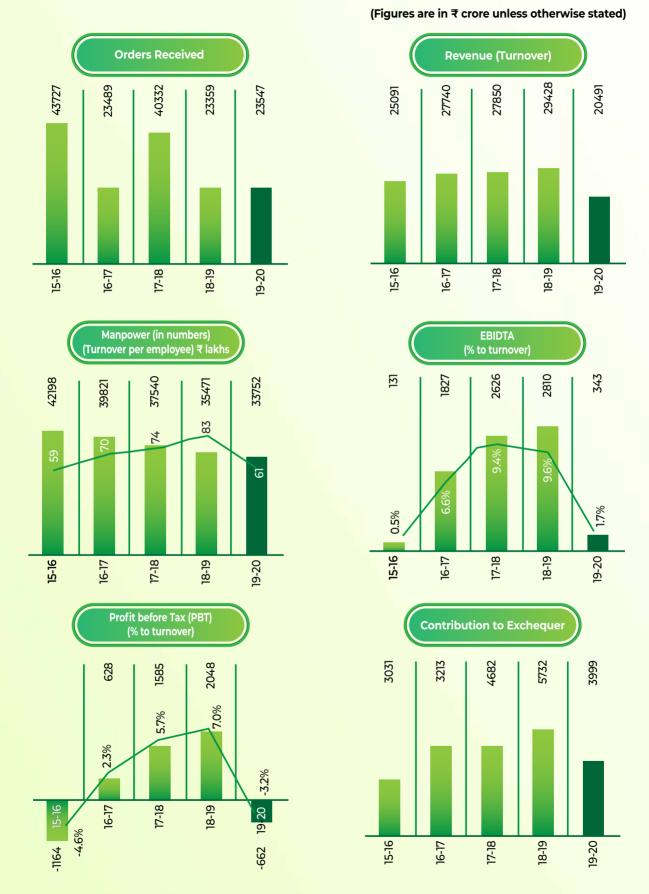
To address this global challenge, BHEL has been putting efforts in reducing carbon footprint of its products and services, thereby enabling the customers to generate power in a sustainable manner with reduced environmental footprints over the life cycle of the plant.

Economic Value Created

The revenue for the year was mainly impacted due to COVID-19 pandemic in the last quarter of FY 2019-20, which led to a nationwide lockdown from 25th March 2020 disrupting the operations in manufacturing facilities and project execution activities at sites. Even though the lockdown was imposed in the country from 25th March 2020, the impact on company's operations was being felt much earlier, on account of disruptions in material supplies from China, Italy, etc., which started from January 2020 itself and significantly affected the performance during the entire quarter.

For FY 2019-20, the company has incurred a loss of ₹662 Crore as against a profit of ₹2048 Crore in FY 2018-19, mainly due to lower revenue and higher material cost. However, stringent budgetary control measures and prudent provisioning has helped in restricting the loss.

Loss after tax for the FY 2019-20 is $\stackrel{?}{\sim}$ 1473 crore as against profit of $\stackrel{?}{\sim}$ 1209 cr in 2018-19. The loss after tax for FY 2019-20 is significantly higher due to restatement of deferred tax asset at the rate of 25.168% as against 34.944% in FY 2018-19, having an impact of $\stackrel{?}{\sim}$ 957 Crore.



Figures are as per Ind AS



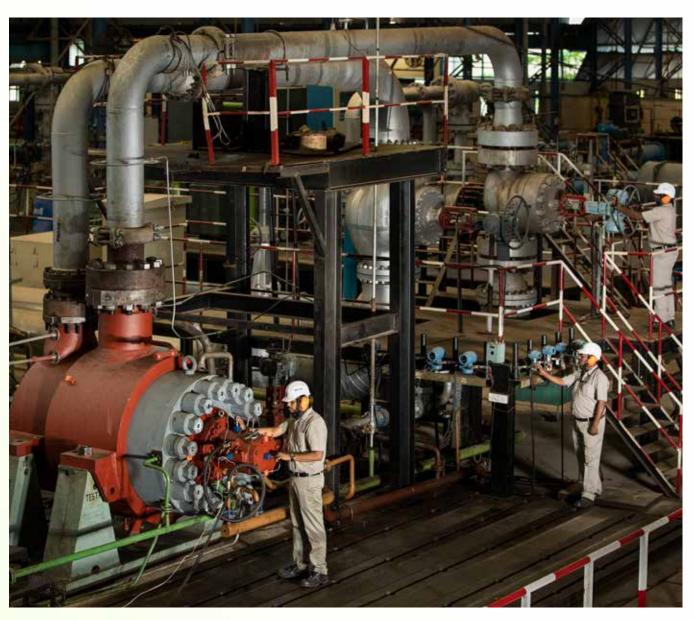
The Company secured orders worth ₹ 23547 crore in FY 2019-20. This comprises orders worth ₹ 13784 crore in the Power segment, ₹ 8757 crore in the Industry segment and ₹ 1006 crore in International operations. The order book outstanding at the end of March 31, 2020 was around ₹ 1,08,443 crore (executable order of ₹ 88,284 crore) against ₹ 1,08,680 crore (executable order of ₹ 86,953 crore) as on March 31, 2019. The order book figures are inclusive of applicable taxes.

Defined Benefit Plan

The Company has following Schemes in the nature of Defined Benefits Plans:

- i) Gratuity Scheme
- ii) Post-Retirement Medical Scheme
- iii) Provident Fund Scheme
- iv) Travel claim on Retirement

For details about the same, reader may refer to page 208-219 of BHEL's Annual Report 2019-20. Govt. grant is received for setting up of solar PV plant and manufacturing of modules which as on 31st March, 2020 stood as ₹ 31.49 crore.



Simulation studies being carried out on BHEL Power equipment of HPEP Hyderabad

OUR ENVIRONMENTAL PERFORMANCE

Management Approach – Sustainability

For BHEL, sustainability is a continuous journey which helps in reaching newer summits of corporate excellence through implementing sound corporate governance framework, enhancing stakeholder value, reducing environmental footprint of products & services as well as internal processes, promoting inclusive growth in the society, and enhancing brand equity. As an organization, we believe in engaging with all our stakeholders in a structured manner and take them along towards the path of sustainability. BHEL is contributing to a greener environment through development of environment friendly technologies and improvement in efficiency of equipment. Continuous improvement in power cycle efficiency and reduced emissions from coal based power plants have been achieved over the time by evolution of technology from sub-critical to supercritical. Attributes of BHEL supplied power plant equipment such as lower auxiliary power consumption, higher plant efficiency, lower design heat rate and higher operating availability help in attaining lower life cycle cost.

As a special initiative to safeguard the environment, BHEL has taken a resolve to declare its townships as "Single Use Plastic Free" zones. During 2019-20, 12 out of 14 townships of BHEL viz Noida, ISG Bengaluru, EDN Bengaluru, EPD Bengaluru, HERP Varanasi, TP Jhansi, Haridwar, Trichy, HEP Bhopal, RC Puram Hyderabad, HPVP Vizag, and FSIP Jagdishpur have been declared as "Single Use Plastic Free Township" based on 3rd party certification audit.

BHEL's well-established Environmental Management System (EMS) is accredited to ISO 14001: 2015 Environmental Management System

standard, based on which all manufacturing units and regions have derived their HSE systems. The EMS provides an excellent framework to proactively identify and manage the risks related to environment in a systematic manner. HSE cells at all BHEL units as well as Power Sector regions oversee the implementation of HSE policy supported by Corporate HSE department at apex level to provide strategic guidance. Periodic audits are carried out by the certifying bodies to ensure the compliance to the EMS and requirements of ISO 14001: 2015. The company's HSE policy is available on the internet and can be accessed through the web link: https://www.bhel.com/sites/default/files/HSEPOLICY.pdf

The initiatives taken under environmental sustainability during the reporting period have been enumerated in the following sections.

Material and Natural Resource Management

As an organization, BHEL is well aware of the theme of Sustainable Development Goal (SDG) number 12 titled "Responsible Consumption and Production" which conveys that for Sustainable growth and development, minimization of use of natural resources and toxic materials, generation of waste and pollutants throughout the value chain is very important. This awareness is embedded in our business processes and manifested in our efforts towards responsible use of material and natural resources through optimization of product design for minimization of cost as well as environmental footprint, built in through our management process, dematerialization of products, sound waste management concepts based on reduction, reuse, recycling and recovery (4R) etc.

The materials mainly used in our operations have been grouped together and reported in the table.



Statement for raw materials and components consumed (Rs. Crore) (page 234,323 of AR 2019-20)						
	2015-16	2016-17	2017-18	2018-19	2019-20	
Group of materials:						
Ferrous materials	2311.13	2021.85	2431.11	3461.21	3054.31	
Non-ferrous materials	296.60	277.64	333.09	313.91	217.01	
Insulating materials	159.08	142.81	168.29	168.39	177.14	
Insulated cables and Magnet wires	33.14	57.33	26.76	20.46	29.67	
Components	5547.26	5955.69	4944.14	6774.46	6122.30	
Others	4654.65	4647.49	4193.06	4618.65	2179.68	
Total cost of materials consumed	13001.86	13102.81	12118.35	15030.08	11780.11	
Turnover	25091	27740	27850	29423	20491	
Accretion/Decretion in inventories	-210	-994	-736	991	1016	
Gross Turnover	24881	26746	27114	30414	21507	

During the year 2019-20, the company had a substantially higher material cost as a percentage of revenues, at 66.9% as against 60.7% recorded last year. The above is largely due to change in composition of turnover, higher content of imported bought outs due to conditions stipulated under DJU (deed of Joint Undertaking) and falling realizations in the market.

It may be noted that due to varied nature of products and associated input materials across the organization, measurement of material consumption in terms of weight or volume of raw materials consumed in physical terms as per Global Reporting Initiative (GRI) standards could not be established and consequently the actual trend of material consumption could not be established at present in absolute physical terms.

Being a material intensive organization, there exists plethora of opportunities for dematerialization of our products and services. In this direction, lot of efforts have been put by our units during the year 2019-20 which included:

 reuse of scrap in shops of manufacturing units such as 2100 MT of Mild Steel scrap and 42 MT of copper scrap in foundry shop of Bhopal,

- despatch of scrap to CFFP Haridwar for making large castings and forgings,
- reuse of packing wood for packaging of products & making cupboards for storage,
- reuse of waste oil and recycling of hydraulic oil in machines such as recycling of 22.8 KL of coolant in Bhopal,
- use of electrostatic oil filtration machine in FSIP Jagdishpur for reusing 10 kL of hydraulic oil in machine,
- reclamation of 1800 MT of sand in foundry shop of Bhopal,
- making use of site returned cables for inhouse electrical works

Sustainable Energy Management

Energy management in a sustainable manner has always been considered an important element in our management decisions. Some of our units are energy intensive and to harness the potential of energy optimization, these units have undergone ISO 50001:2011 certification which has helped them in managing their energy requirements in a systematic manner. Some of the specific activities carried out during 2019-20 for Energy conservation/efficiency included:

- reduction in lighting load through switching to energy efficient lighting fixure in office/ street lights in HEEP Haridwar, HPEP Hyderabad, CFP Rudrapur, BAP Ranipet, HEP Bhopal, FSIP Jagdishpur, Trichy etc.,
- switching to 5 star rating AC equipment at HEEP Haridwar, optimization of air compressor operations through capacity reduction/ intermittent operation at HEEP Haridwar and BAP Ranipet,
- use of transparent roof sheeting at HEEP Haridwar & Trichy,

- installation of variable frequency drive for 2 EOT cranes at BAP Ranipet,
- cycle time reduction in SR furnace at FSIP Jagdishpur, etc.

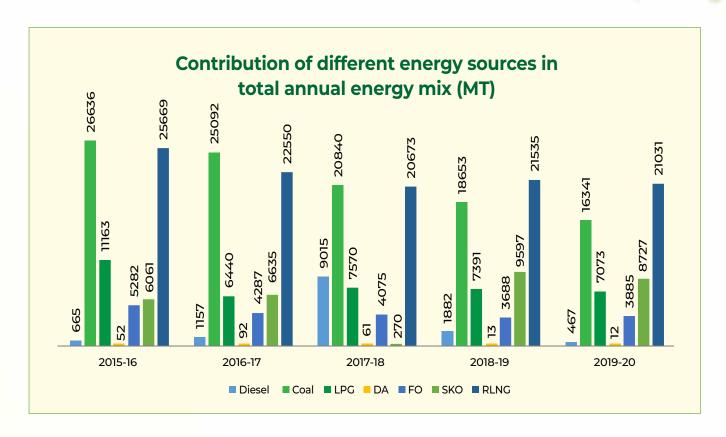
The data for energy consumption (direct & indirect) is shown in the table below for 5 years. Variety of fuels such as Coal, LPG, Diesel, Super Kerosene oil (SKO), Furnace oil (FO), Regasified Liquefied Natural Gas (RLNG), High Speed Diesel oil (HSDO) etc. are being used in BHEL.

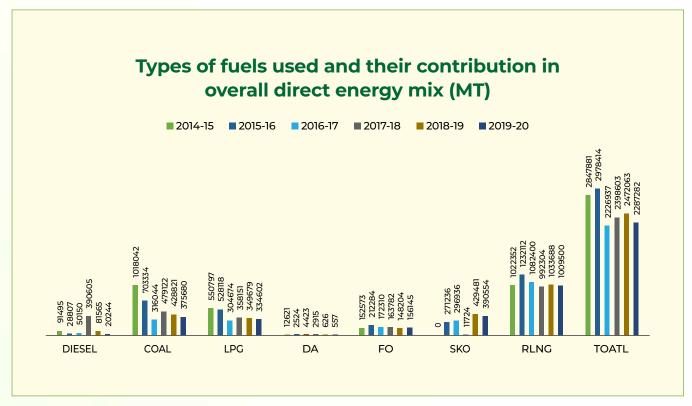
Total Direct & Indirect energy consumption in BHEL units in TJ						
Description	Energy Consumed in TJ (2015-16)	Energy Consumed in TJ (2016-17)	Energy Consumed in TJ (2017-18)	Energy Consumed in TJ (2018-19)	Energy Consumed in TJ (2019-20)	
Direct Energy						
Primary Energy (Fuels Consumed like Diesel, Coal, LPG, Kerosene etc.)	2978.41	2226.94	2398.60	2472.06	2287.28	
Primary Energy Produced (Through Solar Energy generation)	29.26	53.35	56.20	99.37	116.75	
Indirect Energy						
Electricity Consumed	1154.34	1160.36	1170.78	1128.38	1063.28	
Total Energy consumed (TJ)	4162.01	3440.65	3625.58	3699.81	3467.31	
Gross Turnover	24881	26746	27114	30414	21507	
Energy Intensity (GJ /Lakh ₹ of GTO)	1.67	1.29	1.34	1.22	1.61	
Energy Productivity (Lakh ₹ GTO achieved / GJ)	0.60	0.78	0.75	0.82	0.62	

1 Tera Joules (TJ) = 1000 Giga Joules (GJ) = 10⁶ Mega Joules = 10⁹ Kilo Joules (KJ) = 10¹² Joules

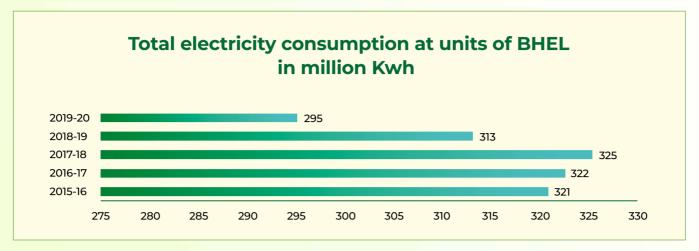


The following figures shows our energy consumption data in different ways.



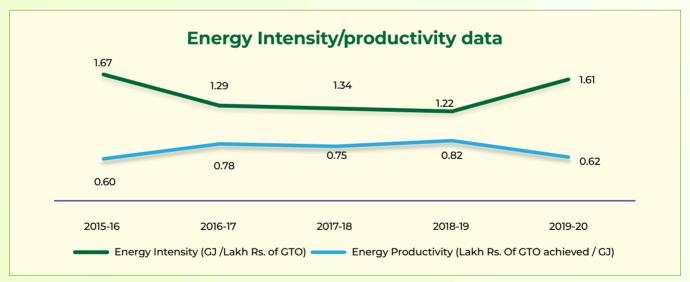


As can be seen from the figure, contribution of coal in terms of weight is coming down on year basis in our energy mix.



As can be seen from the figure, the energy intensity (EI) figure defined as Giga Joules of Energy consumed per lakh Rs. of Gross Turn Over achieved, varied from 1.22 to 1.67 and the average EI stood at 1.43. Similarly, the figure for energy productivity (EP) defined as Gross Turn Over in Rs. Lakhs per Giga joules of Energy consumed for the last 5 years varied from 0.60 to 0.82 and the average figure stood at 0.71.

- Replacement of old inefficient lights with Energy Efficient Lighting systems like LED of various types / capacities.
- Structural revamping of reheating furnace at CFFP-Haridwar.
- Installation of centralized control system for switching of overhead lights at FSIP-Jagdishpur.



Energy Conservation / Efficiency

The Company has continued to give major emphasis on conservation of energy, and measures taken during past years were continued.

Energy conservation initiatives in manufacturing units are monitored to achieve higher efficiency of power & fuels inputs. Some energy conservation measures taken during the year include:

 Awareness generation amongst employees about the necessity of energy conservation.

During the year, energy audits were conducted by the Inter-Unit Energy Audit Teams at HPEP-Hyderabad and HEP-Bhopal Units. Units are getting ISO 50001:2011 (Energy Management System) certified in a phased manner. CFFP-Haridwar, HEEP-Haridwar, HEP-Bhopal, HPEP-Hyderabad, EPD-Bangalore, HPBP-Trichy Unit#1, HPBP-Trichy Unit#2, PPPU-Thirumayam



and BAP-Ranipet Units have already received ISO 50001:2011 certification earlier. During 2019-20, HERP-Varanasi Unit also received ISO 50001:2011 certification.

List of various projects related to energy conservation / efficiency / renewable energy generation completed during 2019-20 at our units is given in the table below.

	Energy Conservation Projects implemented in FY 2019-20						
Sr. No.	Unit Project Title						
1	HEEP	Installation of energy efficient LED Flood Light 45 W (250 Nos) in place of 85 W High Pressure Sodium Vapour(HPSV) Street Light in Street Lighting System	36,500				
2	Haridwar	Installation of energy efficient LED Flood Light 120 W (180 Nos) in place of 450 W Metal Halide(MH) in Block-3	2,00,385				
3		Reduction in 192900 units of Electrical Energy per annum by LED lamp replacement in office areas, Street lights, High mast Tower lights & yards in place of High Power Consumption Fluorescent lamps, Sodium Vapour and Mercury Vapour Lamps	4,18,437				
4	BAP Ranipet	Reduction of 1800 units of Energy by Installing Uninterrupted Power Supply (UPS) in LPG Flame Cutting Machines	1,800				
5		Reduction of 6216 units of Energy per annum by Installing Regenerative Variable Frequency Drives in EOT Cranes of H1 Bay and R1 Bay of BAP Ranipet	6,216				
6		Reduction of 37500 units of Electrical Energy by Minimizing air pressure fluctuations for shot blasting	37,500				
7		Structural Revamping of reheating furnace (Preferably 12M or 7M)	14,24,419				
8		Replacement of 50 nos. High mast tower lights of 400 W by 100/120 W LED Lights	40,880				
9	CFFP	Replacement of 50 nos. street lights of 70 W by 35 W LED Lights	5,110				
10	Haridwar	Installation of VFDs in furnaces for combustion blower to optimise fuel consumption	36,000				
11		Replacement of 500 nos. 20 W LED Tube lights in place of 28 W T-5 Lights	10,560				
12	EDN	50 kW Grid Interactive Roof Top PV Plant	75,000				
13	Bengaluru	50 kW Grid Interactive Roof Top PV Plant	75,000				
14	ESD Bengaluru	Installation of 150kW solar plant	2,00,000				
15	EPD Bengaluru	Minimizing the HVAC electrical load for SPV operation Phase-1	2,06,112				

	Energy Conservation Projects implemented in FY 2019-20						
Sr. No.	Unit Project Title						
16		Replacement of 40 W FTL with 20 W LED Tube light (150+120 Nos)	34,020				
17		Replacement of 500 W Flood Light with 90 W Flood Light light (15Nos)	26,937				
18	FSIP	Installation of centralized control system for switching On/Off the shop floor overhead lights at FP shop.	9,125				
19	Jagdishpur	Installation of centralized control system for switching On/Off the shop floor overhead lights at CS shop.	6,205				
20		Replacement of Mercury Vapour lamp(800 W) to 360 W LED in High Mast Lighting system	91,980				
21		Pre-heating engine jacket water of 6 MW DG set by heat pump.	88,500				
22		Rectification LID of S/R furnace 96 kW , 14/B/2089 to arrest heat leakages and cycle time reduction in TGM	16,000				
23	HEP Bhopal	Reduction of LPG in Galvanizing plant by changing of old gas burners in FYM	1.5T LPG/ year				
24		Replacement of 250 W HPSV overhead light fitting with 150 W energy efficient high bay LED light fitting in Blocks(100 nos.)	37,200				
25		Replacement of 36 W Tube light fitting with 20 W energy efficient LED light fitting (500 nos.) in identified locations of annexes/offices	19,200				
26		Replacing of existing 250 W HPSV Lamp fitting with 200 W Induction / LED lamp fitting in Building 50 - 100 nos.	13,388				
27		Conversion of 400 W HPMV/ MH Medium bay luminaires into 200 W LED/ Induction Luminaires - 50 nos.	30,000				
28		Replacement of standard cooling water pump motor with energy efficient IE3 motor 1 no. in compressor house, unit 1.	3,237				
29		Replacement of cooling tower fan motor with energy efficient IE3 motor in compressor house, unit 1.	647				
30	HPBP Trichy	Replacement of 2 x 65 W fluorescent tube lights with 2 x 18 W LED light fittings	1,02,930				
31		Optimization of electrical control panel ac temperature in CNC machineries	1,15,208				
32		Improvement in Compressed air generation and distribution by arresting leakages in Unused points , Incorporating Reducers for open usage (setting at 3 bar pressure),Optimizing Air Compressors operation in break times	71,280				
33		Roof light optimization	1,16,130				
34		Provision of timer based on/off control for AHUs	6,732				
35		Optimization of Hydraulic Oil Chiller temperature set-point in CNC machineries,	1,18,050				



Energy Conservation Projects implemented in FY 2019-20							
Sr. No.	Unit Project Title						
36		Installation of 20 nos. of 150/200 W LED lights in shop floor to replacement existing 250/350 W fitting.	7,200				
37		Installation of 10 nos. of 100 W LED lights in Gantry yard & factory roads to replacement existing 250 W fitting.	5,400				
38	IVP Goindwal	Installation of 10 nos. of 60 W LED lights in factory boundary to replacement existing 125 W fitting.	2,340				
39		Installation of 50 nos. of 18 W LED Tube lights in offices buildings to replace existing T5 28 W fittings,	1,500				
40		Installation of 50 nos. of 14 W LED Bulbs in offices buildings to replace existing 28 W CFLs.	2,100				
41	IVP Goindwal	Installation of 50 nos. of 9 W LED Bulbs in offices buildings to replace existing 18 W CFLs.	1,350				
42	PPPU	Replacement of 2x400 W Sodium Vapour Luminaire with 1x350 W (High Mast Located in Pipe Yard) - 48 nos.	86,724				
43	Thirumayam	Replacement of 2x400 W Sodium Vapour Luminaire with 1x200 W (High Mast Located Near Periphery) - 36 nos.	86,724				
44		Replacement of 400 W metal halides installed in high mast lamp-12 nos.	28,800				
45	HERP Varanasi	Replacement of old ceiling fans (60 W) with energy efficient ceiling fans(50 W)-25 nos.	5,400				
46		Replacement of 280 W metal halide in shop floor with 118 W LED- 30 nos.	60,480				
47		Replacement of air circulation fan for VBR with energy saving 300 W blower	1,800				
48		Installation of VFDs for RHF Charging RCs	48,000				
49	SSTP Trichy	Replacement of 50 nos. of 70 W HPSV street / boundary lights by 23 W LED lamps	6,204				

Due to various energy efficiency / conservation projects during 2019-20, an estimated energy avoidance of more than 4.0 Million units of annual electricity usages is envisaged.

Further, due to renewable energy generation across our premises, 32.43 Million unit of electricity usages from the grid was avoided during the year 2019-20.

Green Energy Generation

BHEL has established many solar power plants across its premises for its captive use. Presently, the installed capacity of ground based and rooftop solar power plants is nearly 28 MW_p. The share of



5 MW solar power plant including ground mounted, fixed, motor tracking & passive tracking enabled modules of BHEL make at Haridwar plant premises

renewable energy in our electricity consumption steadily increasing thereby making our indirect energy consumption more sustainable.

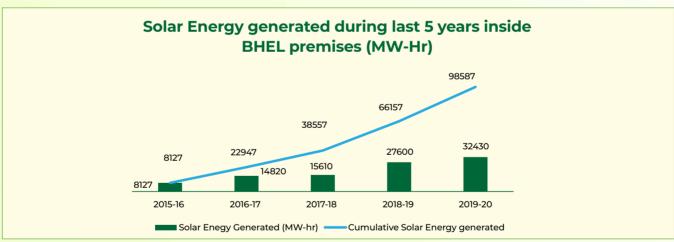
Total electricity generated through various renewable energy (RE) systems stood at 32.43 Million units during 2019-20 as compared to 27.6 Million Units during 2018-19 which means that there is a 17.5% increase in the renewable energy generation during the year 2019-20 as compared to 2018-19. This has been achieved due to contribution of 10 MW capacity added during the year 2018-19. Further, the % share of energy consumed in the total electrical units consumed as well as total energy consumed in BHEL's energy mix is provided in the figure below. It shows that the share of RE in the total energy mix is increasing every year and is now almost 3.37% as compared to just 0.7 % during 2015-16. Similarly, the share of RE in our electrical energy use has increased to 9.89% during 2019-20 as compared to just 2.47% during 2015-16.

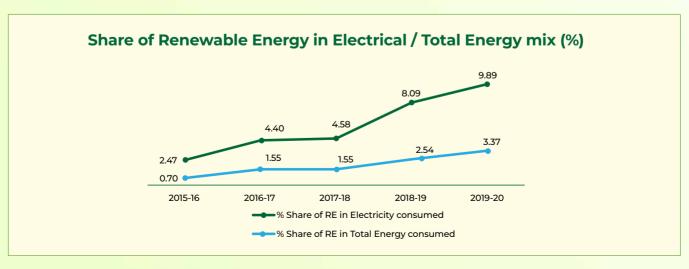
Managing Water & Biodiversity

Managing water & wastewater sustainably and enhancing the green cover across our premises are important elements of our business activities. 12 Sewage Treatment Plants and 12 Effluent Treatment Plants installed across our premises help us in meeting the discharge norms and making most of our units Zero Liquid Discharge (ZLD) entities. Further, to maintain the green belt across our establishments, treated wastewater is reused for horticultural purpose which helps us in reducing the demand for fresh water.

Some specific activities carried out for water conservation during 2019-20 included:

- Reduction in water supply hours at HEEP Haridwar and FSIP Jagdishpur,
- storage of treated wastewater in factory in four big aquifers of 50mX50mX1m for ground water recharge and creating 28 rain water







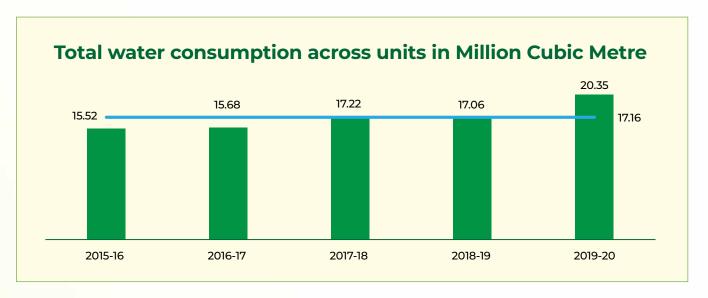


Phytorid based Sewage Treatment technology successfully implemented by BHEL at Telibandha Lake, Raipur

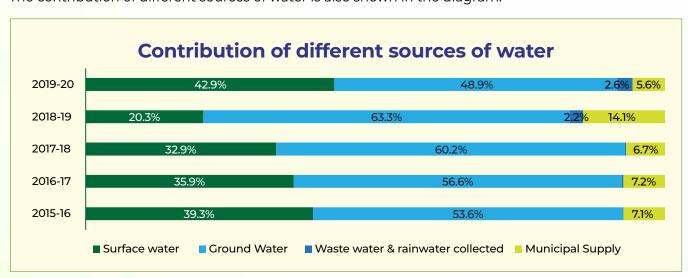
- harvesting ponds with total capacity of 16.23 million litres in Trichy complex,
- development of 2 dams one masonry and other earthen near Dhanvantri park, Habibganj and having approximate capacity of 30,000 cubic mtr of rain water harvesting in Bhopal,
- installation of roof top rain water harvesting system in 4 buildings in EDN & ESD, Bengaluru, etc.

All the parameters of effluents are being checked periodically and found to be within the prescribed limit as specified by respective State Pollution Control Boards.

The average water consumption during the last 5 years was 17.16 Million Cubic Metre.

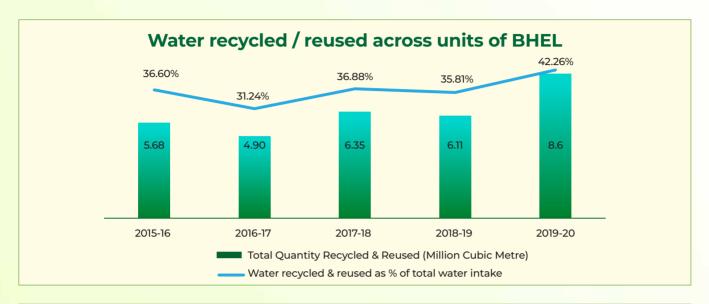


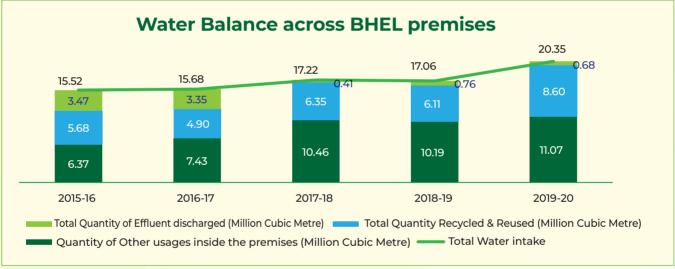
The contribution of different sources of water is also shown in the diagram.

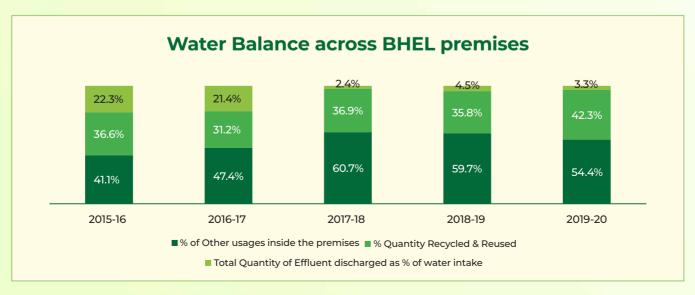


During the year 2019-20, only 6.8 Lakh Cubic Metre of water was discharged outside the premises of BHEL units which is nearly 3.34% of total water

intake. The water balance diagram is also shown for the units. This clearly establishes the declining trend of effluent discharge from our premises.











More than 36,000 trees were planted across the premises of HEP Bhopal During 2019-20

Trees are planted across all BHEL units to commemorate important occasions. During 2019-20, more than 36,000 trees were planted across the premises of HEP Bhopal unit and overall more than 55,000 saplings were planted across BHEL premises to add to its green cover. Biodiversity parks have been established in many of our townships like Noida, Trichy etc. Green belts help us to maintain water table around our presence as well.

This year, BHEL Trichy unit has started a special initiative to create BHEL Vann as a part of its plan to increase the green cover by half a million native trees by 2022, which will add to its existing inventory of 1 million native trees planted since the 1960s. This initiative was inaugurated on 5th June 2019 with the planting of 4500 saplings.

Managing Emissions and Carbon Footprint

Monitoring of emission at our units is being done by the respective units as per the statutory requirements. Records pertaining to that are being maintained and reports are being sent to statutory authorities as per the requirement. Stack and ambient air quality monitoring is being done and emissions are maintained well within the limits prescribed by the respective state pollution control boards.

In most of our units, the use of refrigerants having ozone depleting substances (ODS) has already been discontinued. During the reporting period, ODS of 12 kg CFC-11 Equivalent was used across BHEL units as refrigerants. The new machines procured at various units are using refrigerant gas like R-134a, R-410a etc. which are having zero ozone depletion potential.

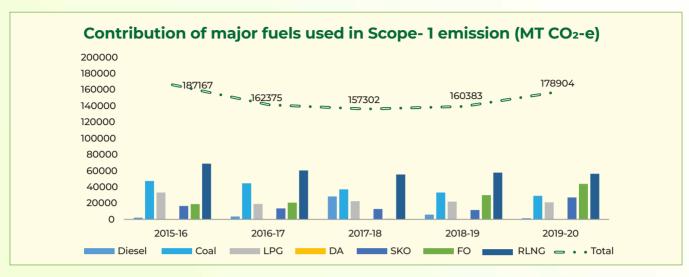
There has been slight adjustment in past data for carbon footprint on account of variation in fuel consumption data and accordingly the past data presented in this section has been modified.

Carbon emissions on account of direct and indirect energy consumption (Scope-1 & 2) is being captured by all the units regularly. The emission is being captured using appropriate methodology as stipulated by United Nations Framework Convention on Climate Change (UNFCCC) protocols and using India specific emission factor. However, system for capturing of scope-3 emissions is yet to be established.

The average value of Scope-1 carbon footprint for the last five year stood at 169226 MT CO₂-equivalent. Further, contribution of emission from coal burning is reducing on annual basis.



295 kWP in-house developed Solar Rooftop SPV panel at BHEL Bhopal



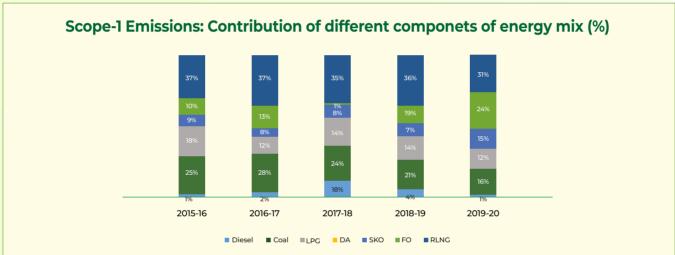
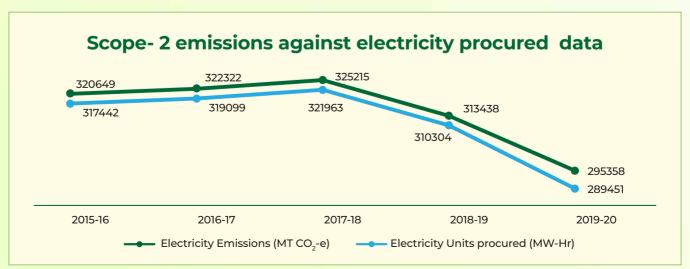
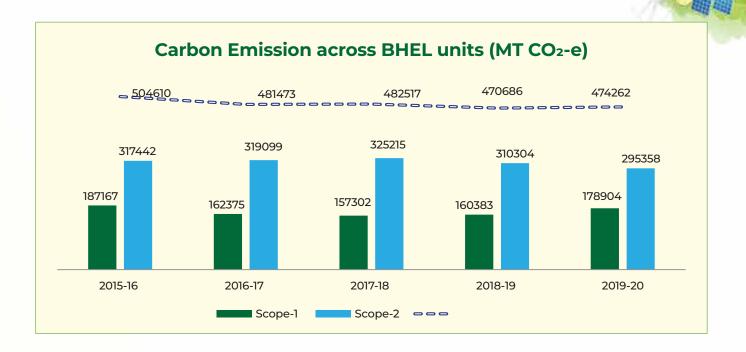


Figure shown below depicts the indirect emissions (scope-2) due to energy consumption through purchase of electricity. Due to better availability of electricity, electricity consumption has increased in our units and correspondingly use of fuel such as diesel for electricity generation

has reduced. Further, the combined data for Scope-1 and Scope-2 emission has been shown in figure. During the last 5 years, a total Carbon Emission of 2.41 Million Metric Tonnes of Carbon equivalent has been generated across the units of BHEL.





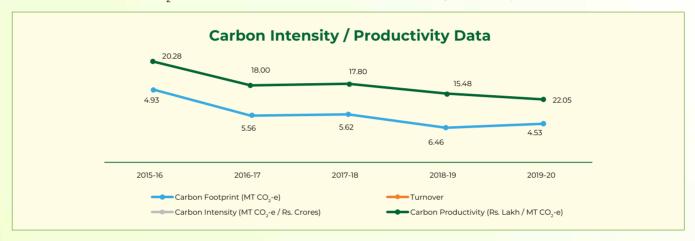




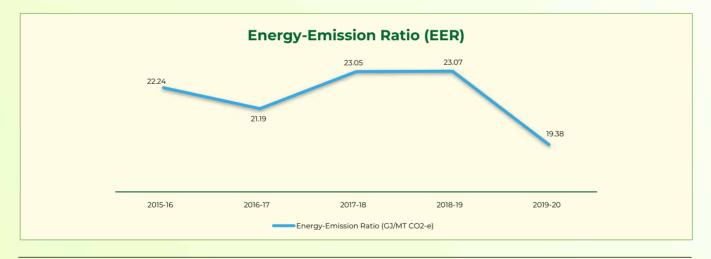
1MW Battery Energy Storage System (BESS) for in-house usage, developed & commissioned at Corporate R&D, Hyderabad

The data for Carbon Intensity (CI) [defined as Carbon Footprint expressed in MT CO₂-e emitted per Crores Rs. of Gross Turn over achieved] are shown in the figure below. The average CI figure stood at 18.72 and average CP figure stood at 5.42 meaning for every Crore Rs of Gross Turnover achieved, 18.72 MT CO₂-e has been emitted in

the atmosphere whereas for every 1 MT CO₂-e emitted, BHEL has achieved a Gross turnover of Rs. 5.42 Lakh. However, it may be noted that the Turnover figure includes the data for entire BHEL, whereas the carbon footprint data comprises only of the emissions from the units as defined in the boundary of the report.



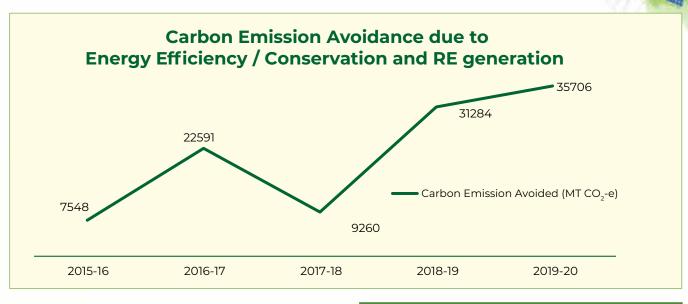
Due to enhanced use of RLNG, the scope-3 emission associated with transportation of the fuel through trucks has reduced considerably. However, the same has not been quantified yet.



Due to various energy conservation / efficiency measures and generation and use of renewable energy inside our premises, considerable amount of carbon footprint avoidance has been achieved. These activities have been listed in the section – Energy. During the reporting year, around 3940 MT CO₂-equivalent of carbon emission was avoided due to various energy efficiency measures taken. In addition, due to generation of renewable energy, further 31760 MT CO₂-equivalent of carbon emission was avoided due to renewable energy generated at our premises.

A total of approx. 106389 MT of CO₂-e avoidance was achieved across our unit in the last five years. There has been a decrease in carbon emission avoidance year on year basis as lot of opportunities for energy efficiency have already been utilised in the past and the data included in this graph is only for activities carried out in that particular year for carbon footprint avoidance. This is largely due to 28 MW_p of Solar Power Plants including rooftop based systems installed for captive consumption across our units.





Responsible Waste Management

With the understanding that waste is a resource in the wrong place, all efforts are made to minimise waste. Sound and sustainable waste management practices are integral to our environment management system conforming to ISO 14001:2015 certification requirements. Responsible waste management practices are manifested in BHEL through the efforts made by the organization in reduction of waste generation at source (reduction), recycling and reuse of waste generated to the extent feasible and disposal of waste generated following procedure/ methodology prescribed in the relevant statutes in a scientific manner. Unavoidably generated scrap is recycled or reused in the units to the extent feasible, or otherwise either sold to authorised recycler, or sent to CFFP Haridwar for making heavy castings and forgings. Hazardous wastes are disposed as per the regulatory requirement and records maintained for scrutiny by authorities.

Some examples of specific activities carried out at units related to waste management during the reporting period included the following:

Waste Management Initiatives:

- reuse of scrap in shops of manufacturing units like 2100 MT of Mild Steel scrap and 42 MT of copper scrap in foundry shop of Bhopal
- installation of 200 kW rooftop solar power plant using lower wattage PV modules (from our production line) and site returned cable accessories and in-house hardware at EDN & ESD Bengaluru
- Vermi composting of kitchen waste at Trichy complex and HERP Varanasi.
- using plastic waste for laying about 50 meter road in township on a trial basis at Trichy
- despatch of scrap to CFFP Haridwar for making large castings and forgings,
- reuse of packing wood for packaging of products & making cupboards for storage
- use of electrostatic oil filtration machine in FSIP Jagdishpur for reusing 10 kL of hydraulic oil in machine
- reuse of waste oil and recycling of hydraulic oil in machines like recycling of 22.8 KL of coolant in Bhopal
- reclamation of 1800 MT of sand in foundry shop of Bhopal,
- making use of site returned cables for in-house electrical works.

Across BHEL, solid wastes / scrap having resale value were collected, segregated, stored and sold to authorised recyclers. Some of it not having any resale value is used for filling up low lying areas. Hazardous wastes / E-waste were disposed off as per the stipulations in the relevant statutes. The data for waste generated during last 5 years is shown in the table below.

Initiatives taken to reduce environmental footprint of our products and services

BHEL is contributing to a greener environment through development of various environment friendly technologies, reduced emissions and improvement in efficiency of its equipment.

Hazardous and Non-Hazardous Wastes generated at units								
Type of wastes	Unit	Quantity (2015-16)	Quantity (2016-17)	Quantity (2017-18)	Quantity (2018-19)	Quantity (2018-19)	Disposal method	
Non -Hazardous	МТ	33933	36945	36261	51548	38571	Sold to the authorised	
Hazardous	MT	5309.8	4724	3312	1692	965	users / sent to disposal facility / reused	

Hazardous waste which can be used outside is sent to authorised recyclers. Rest of the hazardous waste which is to be incinerated or buried in secured landfill is sent to Treatment Storage and Disposal Facility (TSDF) of their respective states for ultimate disposal of such hazardous wastes.

The following table shows the details of waste recycled/reused data for the last 5 years. It may be noted that almost all the quantity of non-hazardous waste generated during the year was sold to authorised recyclers / sent to CFFP Haridwar / reused in-house.

Some of the steps taken in this direction are detailed below:

Having already introduced supercritical technology in India, the company is working further towards reducing the carbon footprint of BHEL made products during their operational lifecycle. In association with IGCAR and NTPC, BHEL is developing Advanced Ultra Supercritical Technology under the aegis of the National Mission on Clean Coal Technology. The technology will yield targeted efficiency of 45-46%

	Waste Reused / Recycled at units						
Type of wastes	Unit	Quantity (2015-16)	Quantity (2016-17)	Quantity (2017-18)	Quantity (2018-19)	Quantity (2019-20)	Remarks
Non -Hazardous	MT	33591	36028	36261	51548	38571	Includes ferrous as well as non-ferrous materials
Hazardous	МТ	1059	2601	1194	1170	714	Used oil and other materials reused inside or sold to authorised recyclers



against efficiency of ~38% of subcritical and ~41-42% of supercritical sets. As a result, coal consumption and CO_2 emission will further reduce by about 11% as compared to supercritical power plants and by about 20% as compared to subcritical power plants for single unit of power generation.

technology exclusively for high ash coal fired Indian thermal power plants through its dedicated R&D efforts and the same has been demonstrated at NTPC Simhadri.

 BHEL has also entered into Technology Collaboration Agreement (TCA) with NANO



World's heaviest and largest casting in Alloy 625 grade (IP Inner Casing LH – 21 MT & UH – 9MT) for AUSC mission project manufactured at CFFP Haridwar



BHEL developed coal gasification facility at Hyderabad

- ◆ BHEL is already offering solutions required to meet the stipulated emission norms in force for generation utilities. The company is executing boiler design modifications, installation of FGD systems for reduction of SO_x emissions and improvement in particulate collection efficiency of ESPs. BHEL has indigenously developed SCR
- Co. Ltd., Republic of Korea for design & manufacture of SCR Catalysts and with Babcock Power Environmental Inc., USA for SCR system catering to $De-NO_{\chi}$ business in Coal fired power plants.
- BHEL is working on development of technology for the conversion of high ash Indian coal to methanol. Successful

implementation of this technology will help generating methanol at industrial scale for its use in blending with petrol which can significantly curb the rising crude oil import bill of the country and improve the energy security of India. Erection & Commissioning of the pilot project is under progress.

- ◆ BHEL has also undertaken development of high efficiency solar cells using Passivated Emitter Rear Contact (PERC) technology at pilot scale. The project includes development of mono and multi-Si solar cells and shall be commercially deployed for production of higher efficiency solar cells. BHEL has also undertaken development of Passivated Silicon Heterojunction (PIHJ) Solar Cells with 21 % efficiency.
- ◆ In transportation sector, to address the transition towards Electric Vehicle mobility as the future mode of transportation, BHEL has already developed e-Bus, permanent magnet motors, induction motors, IGBT controller for e-Buses including electric charging stations for e-mobility infrastructure.

Further details of our Research & Development and Technological Achievements can be found in page 140-143 of BHEL's Annual Report 2019-20.

Management of Significant Spills

Our units are certified to Environmental Management System accredited to ISO14001:2015. This management system stipulates the control measure to be taken for any spill. However, during the reporting period, no significant spill has occurred. Further, there are no water body and related habitats which are significantly affected by our discharge of water and runoff.

Compliance

Health, Safety & Environment (HSE) management system has been well established across our manufacturing units. Efforts for continual improvement in this HSE Management Systems & Procedures are taken by the organization. All

manufacturing units and project sites have HSE departments and required resources, including qualified safety officers and leadership. Safety inspections, HSE audits, work place environment monitoring, health monitoring etc. are part of our established systems and procedures which helps us to maintain and improve HSE management system. All units and regional offices, having certification for ISO 14001:2015 & OHSAS 18001:2007 / ISO 45001: 2018, have undergone periodic external 3rd party audits by the certifying agency to ensure effectiveness of systems.

Environmental Protection Expenditure

BHEL is quite mindful of its responsibility towards reducing the environmental footprint of its products and services. Our commitment to environment especially with regards to precautionary approach is manifested in our efforts towards reducing - material, water & energy consumption, emission and waste generation and simultaneously recycling of reusable waste generated in our premise including effluent and raw materials.

It is the constant endeavour of the organization to enrich the environment through environmental sustainability initiatives taken each year by the units. The HSE related activities taken under revenue expenditure includes incurring expenses on - monitoring of stack emissions & ambient air quality monitoring, obtaining required licenses/authorisations / consents under extant HSE legislations, certification / recertification / periodic external audit for ISO 14001:2015 & OHSAS 18001:2007 / ISO 45001:2018 management system certification, installation & maintenance of new environment friendly technologies, insurance for environmental liability, tree plantation etc. It may be noted that this expenditure has been incurred from revenue budget only and does not include the salary of BHEL personnel involved in environmental management activities. During 2019-20, an expenditure of Rs. 716.62 was incurred on such activities.



OUR SOCIAL PERFORMANCE

Management Approach – Human Rights, Anti-corruption, Labour Practices & Decent Work

BHEL policies are in line with the principles of Human Rights, The Constitution of India, and applicable laws. BHEL has special provisions for ensuring safeguard of women employees at the workplace. In context of human rights abuse, no such instance has been reported in the Company.

BHEL is one of the founding member of Global Compact Network, India (GCNI) and is an active participant in its initiatives. The company reports its performance on ten principles of UNGC on annual basis since 2001 through Communication on Progress (CoP) which includes BHEL's commitment towards upholding the principles of UNGC. This CoP is web-hosted on UNGC website and can be accessed through the webpage:

https://www.unglobalcompact.org/ participation/report/cop/create-and-submit/ active/430394

The same CoP can be accessed through:

https://www.bhel.com/commitment-ungc-programme

To reduce the chances of corruption, preventive vigilance has been the focus area in BHEL. The main objective is to progressively reduce ambiguity and discretion in processes by lugging the loopholes in the system, thereby making decision-making process more objective & transparent, and also reducing the scope for malpractices. One of the key thrust areas for preventive vigilance is surveillance. During the year, multiple manufacturing units / regions of BHEL were inspected by the Corporate Vigilance team to study the various processes being adopted in the units and to identify areas which require improvement.

The audit reports (internal, statutory and CAG reports) relating to BHEL have also been scrutinized so as to determine whether there

is any vigilance angle involved in respect of the irregularities brought out in such reports. In line with the extant guidelines, Annual Property returns of about 4200 employees were scrutinized during the year. Random checks of the activities in the organization were conducted through routine inspections, surprise checks, system studies, CTE type inspection etc.

In addition, as a part of BHEL's persisting endeavour to set a high standard of conduct for its employees (other than those governed by standing orders), 'BHEL Conduct, Discipline and Appeal Rules, 1975' is in place. This is augmented by Fraud Prevention Policy and Whistle Blower Policy which not only arm the company against unacceptable practices but also act as a deterrent. The Company is subject to RTI Act 2005, audit by Statutory Auditors and CAG audit under section 139 of the Companies Act, 2013.

https://www.bhel.com/sites/default/files/ Whistle_Blower_Policy.pdf

BHEL has been a frontrunner in the area of human resource management. The guiding principle for company's HRM policy is to ensure availability of competent, motivated and effectively contributing human resources and to facilitate achievement of their full potential at all times to realize organizational mission. Company has documented HRM policies and rules in the form of a 'Personnel Manual' to ensure transparency and uniformity of implementation for regulating relationship, employment career arowth/ development and employees' emoluments/ benefits, healthcare and well-being. These policies are further complemented by a grievance redressal mechanism through two schemes one for workers and other for staff & officers. A grievance for the purpose of the scheme means a grievance relating to any individual employee arising out of the implementation of Company policies/rules or management decisions.

Both these schemes provide for three tier resolution. Defined timelines are laid down for resolution of grievance at each stage. Besides, an appellate mechanism is also provided under the scheme, in the case of grievance redressal scheme for staff & officers, which an aggrieved employee can approach in case he / she is not satisfied with the resolution of the grievance.

Profile of the Employee Base

BHEL's greatest strength is its highly skilled and committed workforce of 33,752 employees, as on 31st March, 2020 with approximately 5.9% permanent women employees. Number of permanent employees with disabilities as on 31-03-2020 was 890.

Presidential Directives on reservation policy issued by Central Government from time to time provide for certain percentages of reservation



in direct recruitment as well as promotion in specified posts and for specified reserved category of candidates, i.e. SCs, STs, OBCs and Persons with Disabilities (PwD). The overall representation of SC/ST/OBC employees in total manpower as on 31/12/2019 was 20.56%, 7.27% and 34.25% for SCs, STs and OBCs respectively. The percentages in direct recruitment during the year 2019 were 14.47%, 7.24% and 25.00% for SCs, STs and OBCs respectively.

BHEL has twenty-nine participative trade unions represented in the apex level bipartite body, namely the Joint Committee for BHEL for discussing workers' and Company's interest related issues with the worker representatives, based on the principle of participative management. Besides this, there are two employee associations, one each for executives and supervisors in BHEL.

All three categories of employees viz. Executives, Supervisors and Workers are represented by their respective association/trade unions. However, since there is no check-off facility to ascertain the exact membership of executive / supervisory associations and workers' unions, a firm number in respect of the three classes of employees is not available.

In 2019, 10% reservation was introduced for Economically Weaker Sections (EWS) not covered under existing reservation for Scheduled Castes, Scheduled Tribes and Socially and Educationally Backward Classes. During the calendar year 2019, the percentage of EWS in direct recruitment was 8.55%.

BHEL does not hire employees on temporary/ casual basis. However, BHEL awards job/works contracts to contractors at its various Units / Divisions / Departments as per organizational needs. The number of workers with contractors varies from time to time.

Performance and Career Development

In order to bring about objectivity, enhance responsibility and accountability, eliminate perception of bias in evaluation, and encourage a high-performance culture, BHEL's Performance Management System, eMAP underwent modifications for final review of 2019-20 and also performance planning for 2020-21.

Availability of Job Descriptions (JDs) fosters role clarity and rational work distribution. To standardise the process of creating Job descriptions, a module has been developed in SAP to capture job description & competency profile, through which critical key & ongoing responsibilities and technical & behavioural competencies of all the key positions can be created and maintained. Standardizing the Job Description and Competency Profile of Key Positions can be utilised for identification of successors, career progression assessment and development of technical & behavioural competencies.



Employee Satisfaction Survey is conducted at the company level every alternate year for identification of opportunities for improvement (OFIs) at company and unit level, bringing about improvements in identified areas in a time bound manner, and internal benchmarking amongst various units, to facilitate adoption of best practices from amongst units of BHEL. ESES 2019-20 was conducted online for all categories/ cadres of BHEL employees across all units through a centrally administered online platform, including in regional languages. With more than 17000 respondents, ESES 2019-20 gathered response from more than 50% employees. The responses were analysed and presentation was made to the Top Management, with action plans to maintain and further enhance the engagement and satisfaction levels.

To implement employee related best practices and continually improve the capability of our human resources, People-Capability Maturity Model (CMM) has been deployed in BHEL w.e.f. 2018-19. Accordingly, assessments were carried out across the organization during 2018-19, under the guidance of M/s QAI India Ltd. BHEL was found to largely align with the P-CMM level 2 with a few improvement areas. BHEL has started its journey towards P-CMM Level 3 which envisages excellence in efforts towards competency based process areas.

To prepare a pool of aligned executives ready to take up senior roles, an in-house BHEL Online Development Centre (BODC) exercise was designed and developed based on past experience, and tested as a pilot to assess, identify gaps, initiate and develop levels of behavioural competencies at individual and organisation level. BODC involves multiple evaluation techniques including job-related simulations, psychological tests viz. Individual Learning Pattern, SHL Quicksift, Situational Judgement Test etc. These tests assess a variety of competencies to provide a comprehensive view of respondents. During the year, 124 senior officials were covered in the

exercise. All middle and senior level executives are planned to be covered.

Labour / Management Relations

All round Development through Participation of All, ensured by way of BHEL's policy of open and continuous communication with all sections of employees, has been the driving mantra in our Industrial Relations journey. The impetus given to participatory culture has been instrumental in maintaining and building a congenial harmonious climate with proper nurturing by the management in close collaboration with various employee groups.

Industrial Relations in various manufacturing units, divisions and offices of the Company remained harmonious and peaceful during FY 2019-20. Owing to the participatory ecosystem prevalent in the Company, 'NIL' man-days were lost during the year on account of strike against Company policies, which bears testimony to the joint efforts undertaken by the Management as well as the employee groups.

Two meetings of the apex level bipartite forum, "Joint Committee" were held in the year. 45 Plant Council meetings and 501 Shop Council meetings were held at various units. Meetings were also held with representatives of executives and supervisors on business prospects & challenges, company level issues, etc. Discussions in various bipartite forums centred on improvement in the overall performance of the Company by way of increase in productivity, improvement in quality, safety and delivery in order to meet customer commitments and adopting various cost reduction measures for betterment of the financial health of the Company.

To strengthen the national fight against COVID-19 pandemic, employees of BHEL contributed one day's salary amounting to ₹ 8.72 Crores to PM CARES Fund.

Occupational Health & Safety

BHEL's Health, Safety & Environment (HSE) policy underscores the commitment of the organization

to provide safe and healthy work environment to all its employees. The policy conforms to the requirements of ISO 14001:2015 & OHSAS 18001:2007 / ISO 45001:2018 management system certification and can be accessed through the link: https://www.bhel.com/sites/default/files/HSEPOLICY.pdf

HSE cells at all units / divisions implement this policy and Corporate HSE department provides strategic guidance related to HSE matters at organization level.

Company-wide HSE management objectives and processes have been established for improving operational discipline and evolving inherent safety measures. Systems are continuously standardized and upgraded to reach the target of zero injuries and incidents. BHEL is having a three-tier HSE monitoring system in place. HSE related issues are reviewed in various forums like plant level apex committee, joint committee, central safety committee, shop level committee, risk management committee etc. ISO 14001:2015 and OHSAS 18001:2007 / ISO 45001:2018 certification of our units is enabling us to manage HSE related risk and achieve excellence in our HSE performance.

Many new initiatives were taken this year to enhance the effectiveness of HSE training, including training on fire safety, awareness programme on ISO 14001:2015 & ISO 45001:2018, "Training of Trainers" on Safety, e-module development for ISO 14001:2015 & ISO 45001:2018, fire safety stewards training, etc.

During 2019-20, number of average training man-days per employee is 3.70. Company provides training in technical as well as behavioural skills to its employees. Training on Health Safety & Environment (HSE) aspect is one of the essential element of our induction training programme. In addition, separate programmes are also regularly conducted at all BHEL's manufacturing units and project sites to train employees on HSE by both internal and external faculty members. Training on safety is also provided to casual / temporary / contractual workers coming through job / work contracts with contractors.

With a view to enhance the involvement of employees and other stakeholders and generate awareness about HSE related issues and cleanliness, several campaigns were held including Swachhata Pakhwada, Fire Safety Awareness fortnight, Safety Day/week/fortnight, Environment Awareness fortnight and Road Safety Awareness week.

Fire safety audits were conducted for all Delhi / NCR based offices. With all-out efforts, 12 out of 14 BHEL Townships were declared as "Single Use Plastic Free" after the 3rd party audit. BHEL's effort in enhancing safety performance and environmental enrichment has been well appreciated and many awards as a recognition of these efforts have been received. The awards received during the year included:

 9 National Safety Awards (NSA) from Ministry of Labour & Employment, Government of India for performance year 2017 which



BHEL's Arunima magazine receives TOLIC award

is the maximum number of NSA won by any organization.

- Safety Innovation Award 2019 from The Institution of Engineers (India),
- SKOCH Order-of-Merit award 2019 for the project titled '360 Degree Solarisation Across Value Chain'.
- 'Golden Peacock Environment Management Award' 2019 from Institute of Directors, New Delhi,



- Silver award from APEX India Foundation for outstanding achievement in Occupational Safety, Health and Environment Management,
- ◆ "6th EXCEED OHS award for Achieving Excellence in HSE" by Sustainable Development Foundation, New Delhi,
- ◆ 5 State Safety awards from Govt of Tamil Nadu, "Award of Honour" from NSC Tamil Nadu Chapter for BHEL Trichy.
- One of the employees of HPBP Trichy was conferred with the prestigious Jeevan Rakshak Padak 2018 by Govt. of India.
- One of the Safety Officers of HEEP Haridwar unit has received Best Safety Officer (Uttarakhand) Award.

Safety statistics for the last 5 years for our units is shown in the table below.

Seven programmes for about 251 executives including middle and senior management executives were conducted. Advanced Management Programs (AMPs) were conducted for senior management executives focusing on developing leadership capabilities through fostering innovation & implementing change for competitive advantage. Leadership Management Programs (LMPs) were also conducted for focus on acquiring new leadership skills to influence and inspire. Excellence Management Programs (EMPs) for middle management executives were conducted, focusing on their transformation into exceptional cross-functional leaders who can integrate different disciplines.

A Design Thinking workshop was held in March 2020 in revenue generation mode for the first time in which executives from various organizations like GE, GAIL, Balmer Lawrie, Voltas, KEI, MMTC, etc. participated.

	Safety Statistics for BHEL Units					
Year	Total Reportable accidents	Total Man-days Lost	Man Hours worked	Frequency rate	Severity Rate	
2015-16	61	7255	149249324	0.41	48.61	
2016-17	56	7232	141624962	0.395	51.064	
2017-18	61	13238	135973531	0.449	97.357	
2018-19	95	14349	128603285	0.739	111.58	
2019-20	41	7360	123083912	0.333	59.797	

Learning and Development

During 2019-20, average 3.70 training man days per employee were achieved across the organization. 5500 non-BHEL employees such as apprentices, trainees, customers, vendors etc. were also provided training across BHEL units. 115 training programs [42 technical and 68 non-technical] were conducted at Corporate Learning & Development [CLD] Noida / units / IIM covering about 2650 employees.

For development of employees through core programs, six Senior Management Programmes, six General Management Programmes and two Young Managers programmes were conducted in 2019-20 covering 124, 145 and 58 participants respectively.

To augment technical strength in existing business areas, various technical trainings covering existing business were conducted. In addition, training in new business area like e-mobility & battery energy storage system, railway electrification, water business, data analytics, design of Hydro & Solar projects, FGD & SCR etc. were also conducted. 16 technical programs were organized during the year at CLD in addition to the programmes conducted at Human Resource Development Centres of units.

A 24X7 online learning system (LMS) for employees with the objective of Learn, Share & Develop, called UNNAYAN (http://unnayan.bhel.in/), was developed by CLD. Through the year, sixteen web-learning programs were launched over UNNAYAN on various technical, functional, and developmental topics, covering approximately 8000 training man-hours. During the lockdown period, UNNAYAN helped to overcome geographical barriers and gave every employee an opportunity to continue with learning and development process - anytime, anywhere.

PRISM (Project Improvement & Site Management) workshops were held for Panki, Bhusawal and Patratu projects. Employees from site, region headquarters and PMG as well as PS-Marketing participated with enthusiasm in the team building exercises as well as discussion on contractual terms and conditions and other aspects of projects. Customer representatives from the respective projects also joined in the interaction. Director Power and Director E, R&D also joined in a combined interaction with the participants in PRISM-Bhusawal.

Supplier Assessment

BHEL has signed MoU with Transparency International India (TII) to adopt 'Integrity Pact' to make procurement and contracting more transparent by binding both the parties to ethical conduct. A panel of two Independent External Monitors (IEMs) has been appointed to oversee implementation of Integrity Pact in BHEL, with due approval of Central Vigilance Commission. Within BHEL, accountability is well defined for various functionaries through 'Delegation of Power'. Works Policy, Purchase Policy and other policy documents facilitate transparency in BHEL's working and commitment of highest order of integrity. Eight representations received from suppliers during 2019-20 under Integrity Pact have been resolved by the IEMs.

Protecting Human Rights

BHEL policies are in line with the principles of Human Rights, The Constitution of India, and applicable laws. BHEL has special provisions for ensuring safeguard of women employees at the workplace. In context of human rights abuse, no such instance has been reported in the Company.

Grievance Mechanism

The Company has a Stakeholders Relationship Committee specifically to look into matters related to redressal of shareholders and investors complaints. As reported by KFin Technologies Private Limited (Registrar & Share Transfer Agent of the company), 949 complaints were received from the shareholders during 2019-20 and all complaints were redressed by 31st March, 2020.

In addition, a total of 258 public grievance complaints were received from the general public under the Centralized Public Grievance Redressal and Monitoring Scheme during the year 2019-20. All the grievances were satisfactorily resolved.



PERFORMANCE ON SOCIETAL IMPACT

Management Approach – Contribution towards overall wellbeing of the society

BHEL has clearly identified the disadvantaged, vulnerable, poor, needy & marginalized stakeholders in the vicinity of the BHEL manufacturing units / regions / divisions / sites / offices and their concerns are addressed as per BHEL's CSR Policy which is in compliance with section 135 & Schedule VII of the Companies Act 2013 and rules made thereunder as well as DPE Guidelines on CSR & Sustainability for CPSEs.

BHEL has a well-structured organizational set-up, policy & procedures through which various CSR programmes are implemented. The CSR policy has identified several activities from Schedule-VII of the Companies Act, 2013 as its thrust areas. These activities have been categorized under seven headings namely Clean India, Green India, Healthy India, Heritage India, Inclusive India, Educated India and Responsible India. The policy is hosted on website link https://www.bhel.com/our-csr-policy and is fully in conformance with requirements of Section 135 of the Companies Act 2013.

The policy is implemented through a three-tier structure at the corporate level (Board, Board level committee on CSR and Level-1 committee) along with unit level CSR Committee. Company supports numerous social initiatives across the country targeting poor, needy and economically weaker sections of society through specialized agencies such as NGOs, govt. agencies etc. in line with the CSR Policy. BHEL has undertaken several CSR initiatives in the field of health, education. Swachh Bharat. environment protection, vocational training, skill development programmes, infrastructure development and community development programmes, which ultimately contributed to holistic welfare and inclusive growth of the society. CSR projects are closely monitored and supervised with an

objective to provide maximum benefits to the society and to ensure fruitfulness of the initiatives undertaken. During 2019-20, the CSR activities carried out are listed in Annexure IV of Annual Report. Further, project details are listed on the link https://www.bhel.com/our-projects

Apart from inclusive growth through CSR, the company takes affirmative action in recruitment and promotion for representation of employees from socio-economically backward sections of society as well representation of minorities and women, as mandated by the Govt. of India. The company is an equal opportunity employer and does not discriminate on the basis of gender, race, caste, religion, linguistic, region etc. in recruitment and employment relationship.

BHEL was conferred with "Golden Peacock Award for CSR" by The Institute of Directors for BHEL's CSR initiatives, called "Heal-A-Soul", which is a CSR program aimed towards providing medical aids to patients of Hemophilia across the country.

Major CSR initiatives undertaken

BHEL has identified seven thrust areas for its CSR initiatives, which are elaborated in BHEL's CSR policy. All activities in these areas are in line with activities and areas mentioned in Schedule VII of The Companies Act,2013. Brief description of some key CSR interventions during the year, in these thrust areas, are given below.

Clean India

- For conservation of rain water and recharging the ground water, desilting of ponds in vicinity of Village Navapattu in Tiruchirappalli District, Tamil Nadu was taken.
- BHEL continued with its program for constructing Bio-digester toilets in Haridwar & Rishikesh. Twenty clusters of these Biodigester toilets have been completed.

◆ Under Swachh Bharat Abhiyan, BHEL's manufacturing units and projects sites took up many projects for construction / renovation of toilets in schools / colleges and at public places.

Educated India

- Scholarship program for 48 students from adopted villages in Bhopal, mainly widows' wards / orphans / Divyangjan pursuing courses such as ITI, B.Sc. (Nursing) etc.
- Distribution of school kits to 50,000 flood affected poor students in Western Maharashtra.
- Construction of mid-day meal shed in Jagriti Govt. Upper Primary School, Kunda Basti, Jhalana Mahal, Jhalana, Jaipur.
- Providing furniture in a number of Zilla Parishad Schools in Sangareddy, Rangareddy, Asifabad & Medak districts in Telangana.
- Construction of boys & girls hostel building at Govt. Polytechnic, Nizamabad

Healthy India

- Providing Anti Haemophilic Factors (AHF) to 100 poor haemophilic patients in various Aspirational Districts across India under our CSR initiative "Heal-A-Soul III".
- Running Mobile Medical Units in Raigad and Ratnagiri districts in Maharashtra, benefiting more than 32000 rural populations.
- Eye Screening camps and cataract surgery of poor cataract patients through I-CARE Hospital (Noida) at Rudrapur in Uttarakhand, Alwar in Rajasthan, Nuh and Gurugram in Haryana. 2834 poor patients were screened out of which 345 underwent successful cataract surgery.
- Eye Screening and Cataract Surgery Camp in villages in Thiruvallur and in villages near Uppur TPS Site, Ramanathapuram, Tamil Nadu
- Four medical camps were organised in villages in vicinity of BHEL Bhopal and 781

villagers were provided treatment for various ailments and common diseases.

Green India

- Providing solar water heaters at Vikarabad and Gaulidoddi social welfare residential schools for girls, Telangana.
- Providing Solar Street Lights in Donkeshwar Village, Nizamabad district, Telangana.
- ◆ Financial support to district administration, Thiruvallur (TN) for installation of Pyrolator Unit for solid waste management.

Responsible India

- Two Community Centres at Siddharthnagar (U.P.) were completed during the year.
- Construction of Dining Hall in the hostel of Divya Prem Sewa Mission Nyas for leprosy patients and their wards at Haridwar, Uttarakhand.
- Replacing solar panels at Old Age Home at Kattur, Tiruchirappalli district, Tamil Nadu in which 101 deserted men & women live.
- Relief work in Gaja cyclone affected area near Tanjore & Pudukottai Districts, Tamil Nadu.

Inclusive India

- Support to Latika Roy Memorial Foundation, Dehradun for their program "Latika Vihar– Come One: Come All", which is a holistic development & inclusion program for children and young adults with intellectual impairment.
- ◆ Installation of LED streets lights and related infrastructure at the confluence of Alaknanda and Mandakini rivers at Rudraprayag, Uttarakhand for promotion of tourism in the area.
- ◆ Skill development training to women in various trades like embroidery, beautician, tailoring, music & dance etc. at Haridwar, Uttarakhand through BHEL Ladies Club.



Compliance

Customer value is an integral part of BHEL's culture which is also been reflected in our Vision, Mission and Values statement. Company is constantly working towards creating value for customer through products and services. Every product offering of BHEL is labelled with detailed product labels / name plates and provided with test certificates as per the requirement and terms of contracts with customers besides the mandatory requirement of the applicable law.

Given BHEL's diverse and large scale nature of operations, customer complaints get registered and resolved through multiple ways. Two dedicated centralized online complaint systems, i.e., Customer Care Management System (CCMS) and Site Action Request (SAR) / Commissioning Action Request (CAR) resolution system (SCRS) are in operation. In 2019-20, major quality issues reported were taken up for Root Cause Analysis (RCA) and twenty-eight cases were resolved.

Apart from complaints, customer feedback is taken through customer satisfaction surveys, customers' meets, face-to-face interactions, video-conferencing and appreciation letters. There is no case filed by any stakeholder against the company regarding unfair trade practices, irresponsible advertising and / or anticompetitive behaviour during the last five years and pending as on end of financial year i.e., 31-03-2020.

Research & Development and Technological Achievements

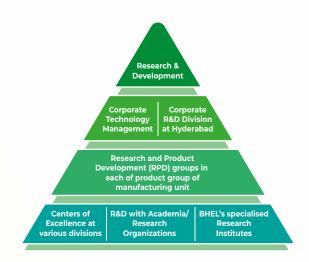
Innovation ecosystem in BHEL is geared to bring new products and systems with improved technical features to address business requirements. To achieve robust growth, BHEL has aligned its innovation ecosystem to provide reliable products which are not only cost-competitive but also have an edge in performance and efficiency.

BHEL has a strong engineering and R&D base for in-house development of technologies to address the market requirements. BHEL is also focusing on flow of knowledge and information throughout the innovation ecosystem for growth of its workforce.

BHEL has entered into technology collaboration agreement with leading global manufacturing and engineering companies. The company has successfully indigenized the technologies to meet the requirements of Indian customers and established manufacturing facilities at its own works.

BHEL has aligned its innovation ecosystem in a structured and focused manner through five-pronged approach, consisting of Strategic Direction, Portfolio Management, Partnerships & Alliances, Knowledge Management and Enablers to address the strategic diversified growth.

R&D organizational structure of the Company is headed by Director (E, R&D), supported by Corporate Technology Management (CTM) at corporate level. CTM is responsible for strengthening engineering and R&D capabilities of the company in an integrated and focused manner so as to build strong capabilities in product development & engineering guided primarily by responsiveness to the ever-evolving market demands. Each product group in the Units has dedicated Research & Product Development (RPD) group, well complemented by a centralized Corporate Research & Development Division at Hyderabad.



Innovation ecosystem of the company is backed by well-equipped state-of-the-art R&D

infrastructure and is benchmarked with the best in the world. The company's R&D infrastructure consists laboratories at Corporate R&D and manufacturing Units, Centres of Excellence, Specialized Research Institutes, etc. For details about R&D and Technological achievement during 2019-20, user may please refer to page 140-143 of BHEL's Annual Report 2019-20.

Marketing Communication

BHEL being a multi-national organisation has its office and operations spread across the globe. Any marketing communication is thoroughly reviewed for adherence to applicable laws and statues before publication. While the company

has a centralised department (Corporate Communications) which is the primary agency for all advertising communication and thus responsible for compliance, advice for BHEL's overseas contacts, associates and at times, the Embassy / High Commission of India is also consulted before issuance of communication for overseas market.

Power Sector Marketing department deals with sponsorship of events for sales promotion. It follows company's set practice in this regard. No incidence of non-compliance with regulations and voluntary codes concerning marketing communications has taken place pertaining to Power Sector Marketing.



Skill development training at Haridwar, Uttarakhand

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GRI CONTENT INDEX FOR 'IN ACCORDANCE' - COMPREHENSIVE

	General Standard Disclosures					
Indicator	Description	Page No. / explanation	Omissions	External Assurance		
	Strategy And Analys	sis				
G4-1	Statement from the most senior decision – maker of the organisation about the relevance of sustainability to the organisation and the organisation's strategy for addressing sustainability	2-3				
G4-2	Description of key impacts, risks, and opportunities	BHEL's Annual Report 2019-20 Page 32 -33				
	Organisational Profi	le				
G4-3	Name of the organisation	7				
G4-4	Primary brands, products, and services	7				
G4-5	Location of organisation's Headquarters	7				
G4-6	Number of countries where the organisation operates	8				
G4-7	Nature of ownership and legal form	13				
G4-8	Markets served	5-7				
G4-9	Scale of the organisation	7				
G4-10	Details of workforce broken down by gender, employment contract, employment type etc.	40				
G4-11	Percentage of total employees covered by collective bargaining agreements	41				
G4-12	Description of the organisation's supply chain	12				
G4-13	Significant changes during the reporting period regarding the organisation's size, structure, ownership, or its supply chain	None				
G4-14	How the precautionary approach or principle is addressed by the organisation	20				
G4-15	Externally developed economic, environmental and social charters, principles, or other initiatives to which the organisation subscribe or which it endorses	BHEL's Annual Report 2019-20 Page 138				

	General Standard Disclosures					
Indicator	Description	Page No. / explanation	Omissions	External Assurance		
G4-16	Memberships of associations and national/ international advocacy organisations in which the organisation holds a position on the governance body and participates in projects or committees	BHEL's Annual Report 2019-20 Page 138				
	Identified Material Aspects and	d Boundaries				
G4-17	Entities included in the organisation's consolidated financial statements with indication of coverage in the report	15				
G4-18	Process for defining the report content and the Aspect Boundaries	BHEL's				
G4-19	Material Aspects identified in the process for defining report content	Sustainability Report 2018-19 Page 14				
G4-20	Description of Aspect Boundary within the organisation for each material aspect					
G4-21	Description of Aspect Boundary outside the organisation for each material aspect		Not reported			
G4-22	Explanation of the effect of any re-statement of information provided in the earlier Report.	Not				
G4-23	Significant changes from previous reporting periods in the Scope and Aspect Boundaries	applicable				
	Stakeholder Engagem	nent				
G4-24	List of stakeholder groups engaged by the organisation					
G4-25	Basis for identification and selection of stakeholders with whom to engage	BHEL's Sustainability				
G4-26	Organisation's approach to stakeholder engagement	Report 2018-19				
G4-27	Key topics and concerns that have been raised through stakeholder engagement, and how the organisation has responded to those key topics and concerns	Page 12 – 14				
	Report Profile					
G4-28	Reporting Period	15				
G4-29	Date of most recent previous Report	16				
G4-30	Reporting cycle	16				

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	General Standard Discl	osures		
Indicator	Description	Page No. / explanation	Omissions	External Assurance
G4-31	Contact point for questions regarding the report or its contents	16		
G4-32	GRI Content Index	49 - 62		
G4-33	Organisation's policy and current practice with regard to seeking external assurance for the report; relationship with the assurance providers; the highest governance body's involvement in seeking assurance for the organisation's Sustainability Report			No External Assurance taken
	Governance			
G4-34	Governance structure of the organisation; committees responsible for decision-making on economic, environmental and social impacts			
G4-35	Process for delegating authority for economic, environmental and social topics from the highest governance body to senior executives and other employees			
G4-36	Executive - level positions with responsibility for economic, environmental and social topics			
G4-37	Processes for consultation between stakeholders and the highest governance body on economic, environmental and social topics	BHEL's Annual		
G4-38	Composition of the highest governance body and its committees	Report 2019-20		
G4-39	Function of the Chair of the highest governance body within the organisation's management and the reasons for his arrangement as an executive officer	Page 74 - 81		
G4-40	Nomination and selection processes for the highest governance body and its committees; the criteria used for nominating and selecting highest governance body members			
G4-41	Processes for the highest governance body to ensure conflicts of interest are avoided and managed; disclosure of conflicts of interest to stakeholders			

	General Standard Disclosures						
Indicator	Description	Page No. / explanation	Omissions	External Assurance			
G4-42	Highest governance body's and senior executives roles in development, approval, and updating of the organisation's purpose, value or mission statements, strategies, policies, and goals related to economic, environmental and social impacts	CAPIUIIGUOII					
G4-43	Measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental and social topics						
G4-44	Processes for evaluation of the highest governance body's performance with respect to governance of economic environmental and social topics; actions taken in response to evaluation results						
G4-45	Highest governance body's role in the identification and management of economic, environmental and social impacts, risks, and opportunities; use of stakeholder consultation for supporting the process	BHEL's Annual Report 2019-20 Page 74 - 81					
G4-46	Highest governance body's role in reviewing the effectiveness of the organisation's risk management processes for economic, environmental and social topics						
G4-47	Frequency of the highest governance body's review of economic, environmental and social impacts, risks, and opportunities						
G4-48	Highest committee or position that formally reviews and approves the organisation's sustainability report and ensures that all material Aspects are covered						
G4-49	Process for communicating critical concerns to the highest governance body						
G4-50	Nature and total number of critical concerns that were communicated to the highest governance body and the mechanism(s) used to address and resolve them						

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	General Standard Disclosures					
Indicator	Description	Page No. / explanation	Omissions	External Assurance		
G4-51	Remuneration policies for the highest governance body and senior executives; how performance criteria in the remuneration policy relate to the highest governance body's and senior executives' economic, environmental and social objectives					
G4-52	Process for determining remuneration					
G4-53	How stakeholders' views are sought and taken into account regarding remuneration	BHEL's Annual Report 2019-20 Page 74 - 81				
G4-54	Ratio of the annual total compensation for the organisation's highest- paid individual to the median annual total compensation for all employees (excluding the highest – paid individual)					
G4-55	Ratio of percentage increase in annual total compensation for the organisation's highest – paid individual to the median percentage increase in annual total compensation for all employees (excluding the highest – paid individual)					
	Ethics and Integrity	y				
G4-56	Organisation's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics					
G4-57	Internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organisational integrity	12 - 13				
G4-58	Internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organisational integrity					

	Specific Standard Disclosures	- Material As	pects			
Indicator	Description	Page number / explanation	Omissions	External Assurance		
	CATEGORY: ECONOMIC					
	Economic Perform	nance				
G4-EC1	Direct economic value generated and distributed	17 – 19				
G4-EC2	Financial implications and other risks and opportunities for the organisation's activities due to climate change	BHEL's Annual Report 2019-20 Page 32				
G4-EC3	Coverage of the organisation's defined benefit plan obligations	BHEL's Annual Report 2019-20 Page 208 – 219				
G4-EC4	Financial assistance received from government	19				
	Market Presence	ce	<u> </u>			
G4-EC5	Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation	Not				
G4-EC6	Proportion of senior management hired from the local community at significant locations of operation	applicable				
	Indirect Economic Ir	mpacts				
G4-EC7	Development and impact of infrastructure investments and services supported					
G4-EC8	Significant indirect economic impacts, including the extent of impacts	45 - 46				
	Procurement Prac	tices				
G4-EC9	Proportion of spending on local suppliers at significant locations of operation	12				





	Specific Standard Disclosures	- Material As	spects	
Indicator	Description	Page number / explanation	Omissions	External Assurance
	CATEGORY: ENVIRON	MENTAL		
	Materials			
G4-EN1	Materials used by weight or volume			
G4-EN2	Percentage of materials used that are recycled input materials	20 - 21		
	Energy			
G4-EN3	Energy consumption within the organisation	22 - 24		
G4-EN4	Energy consumption outside of the organisation		Not reported	
G4-EN5	Energy intensity	24		
G4-EN6	Reduction of energy consumption	24 – 28		
G4-EN7	Reductions in energy requirements of products and services	27 – 28		
	Water			
G4-EN8	Total water withdrawal by source	28		
G4-EN9	Water sources significantly affected by withdrawal of water	None		
G4-EN10	Percentage and total volume of water recycled and reused	30		
	Biodiversity			
G4-DMA	Aspect specific DMA	28		
G4-ENII	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas		None of BHEL's operational sites are owned, leased,	
G4-EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas		managed in, or are adjacent to, protected areas and areas of high	
G4-EN13	Habitats Protected or Restored		biodiversity value, therefore,	
G4-EN14	Total number of IUCN red list species and national conservation list species with habitats in areas affected by operations, by level of extinction risk		these standard disclosures are not applicable.	

	Specific Standard Disclosures - Material Aspects				
Indicator	Description	Page number / explanation	Omissions	External Assurance	
	Emissions				
G4-EN15	Direct greenhouse gas (GHG) emissions (scope 1)	31 – 32			
G4-EN16	Energy indirect greenhouse gas (GHG) emissions (scope 2)	32 – 33			
G4-EN17	Other indirect greenhouse gas (GHG) emissions (scope 3)	32 – 33			
G4-EN18	Greenhouse gas (GHG) emissions intensity	34			
G4-EN19	Reduction of greenhouse gas (GHG) emissions	34 – 35			
G4-EN20	Emissions of ozone-depleting substances (ODS)	31			
G4-EN21	NO _x , SO _x , and other significant air emissions	31			
	Effluents and Wa	aste			
G4-EN22	Total water discharge by quality and destination	30			
G4-EN23	Total weight of waste by type and disposal method	35 – 36			
G4-EN24	Total number and volume of significant spills	38			
G4-EN25	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel convention, annex i, ii, iii, and viii, and percentage of transported waste shipped internationally		This standard disclosure is not applicable as there was no transport, import, export or treatment of waste deemed hazardous under the terms of Basel Convention Annex I, II, III & IV		
G4-EN26	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organisation's discharges of water and runoff	Not applicable			

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	Specific Standard Disclosures - Material Aspects					
Indicator	Description	Page number / explanation	Omissions	External Assurance		
	Products & Servi	ces				
G4-EN27	Extent of impact mitigation of environmental impacts of products and services	36 – 37				
G4-EN28	Percentage of products sold and their packaging materials that are reclaimed by category	38				
	Compliance					
G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.	38				
	TRANSPORT					
G4-EN30	Significant environmental impacts of transporting products and other goods and materials for the organisation's operations, and transporting members of the workforce		Not reported			
	Overall					
G4-EN31	Total environmental protection expenditures and investments by type	38				
	Supplier Environmental A	Assessment				
G4-EN32	Percentage of new suppliers that were screened using environmental criteria					
G4-EN33	Significant actual and potential negative environmental impacts in the supply chain and actions taken		Not reported			
	Environmental Grievance	Mechanism				
G4-EN34	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms	38				
	CATEGORY: SOCIAL					
LABOR PRACTICES AND DECENT WORK						
	Employment					
G4-LA1	Total number and rates of new employee hires and employee turnover by age group, gender and region	BHEL's Annual Report 2019-20 Page 70 - 71				

	Specific Standard Disclosures - Material Aspects				
Indicator	Description	Page number / explanation	Omissions	External Assurance	
G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	BHEL's Annual Report 2019-20 Page 258			
G4-LA3	Return to work and retention rates after parental leave, by gender		Not applicable		
	Labor/Management F	Relations			
G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements		Not applicable		
	Occupational Health a	nd Safety			
G4-LA5	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs	39 – 40			
G4-LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender				
G4-LA7	Workers with high incidence or high risk of diseases related to their occupation	41 – 42			
G4-LA8	Health and safety topics covered in formal agreements with trade unions				
	Training and Educ	ation			
G4-LA9	Average hours of training per year per employee by gender, and by employee category	42			
G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	43 – 44			
G4-LA11	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category	40 – 41			

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	Specific Standard Disclosures - Material Aspects				
Indicator	Description	Page number / explanation	Omissions	External Assurance	
	Diversity and Equal Op	portunity			
G4-LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	14			
	Equal Remuneration For Wo	omen and Men			
G4-LA13	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation		Not applicable		
	Supplier Assessment for La	bor Practices			
G4-LA14	Percentage of new suppliers that were screened using labor practices criteria	44			
G4-LA15	Significant actual and potential negative impacts for labor practices in the supply chain and actions taken		Not reported		
	Labor Practices Grievance	Mechanisms			
G4-LA16	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms	44			
	HUMAN RIGHT	S			
	Labor Practices Grievance	Mechanisms			
G4-HR1	Total number and percentage of significant investment agreements and contracts that include human rights clauses or that underwent human rights screening				
G4-HR2	Total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained	44			
G4-HR3	Total number of incidents of discrimination and corrective actions taken				

	Specific Standard Disclosures - Material Aspects				
Indicator	Description	Page number / explanation	Omissions	External Assurance	
	Freedom of Association and Col	lective Bargair	ning		
G4-HR4	Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and measures taken to support these rights	None			
	Child Labour				
G4-HR5	Operations and suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor	None			
	Forced or Compulsory	y Labour			
G4-HR6	Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor	None			
	Security				
G4-HR7	Percentage of security personnel trained in the organisation's human rights policies or procedures that are relevant to operations	39			
	Indigineous Rigi	hts			
G4-HR8	Total number of incidents of violations involving rights of indigenous peoples and actions taken		Not applicable		
	Assessment				
G4-HR9	Total number and percentage of operations that have been subject to human rights reviews or impact assessments	44			



	Specific Standard Disclosures - Material Aspects				
Indicator	Description	Page number / explanation	Omissions	External Assurance	
	Supplier Human Rights A	Assessment			
G4-HR10	Percentage of new suppliers that were screened using human rights criteria				
G4-HR11	Significant actual and potential negative human rights impacts in the supply chain and actions taken		Not reported		
	Human Rights Grievance	Mechanisms			
G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms	44			
	SOCIETY				
	Local Communit	ties			
G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	44			
G4-SO2	Operations with significant actual and potential negative impacts on local communities	44			
	Anti Corrputio	n			
G4-SO3	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified	BHEL's Annual Report			
G4-SO4	Communication and training on anti- corruption policies and procedures	2019-20 Page 29			
G4-SO5	Confirmed incidents of corruption and actions taken	BHEL's Annual Report 2019-20 Page 145 - 146			
	Public Policy				
G4-SO6	Total value of political contributions by country and recipient/beneficiary		Not applicable		

	Specific Standard Disclosures	- Material As	pects	
Indicator	Description	Page number / explanation	Omissions	External Assurance
	Anti Competitive Bel	haviour		
G4-SO7	Total number of legal actions for anti- competitive behavior, anti-trust, and monopoly practices and their outcomes	47		
	Compliance			
G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	47		
	Supplier Assessment For Imp	acts On Societ	у	
G4-SO9	Percentage of new suppliers that were screened using criteria for impacts on society		Not reported	
G4-SO10	Significant actual and potential negative impacts on society in the supply chain and actions taken		Not reported	
	Grievance Mechanisms for Im	pacts on Socie	ty	
G4-SO11	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms	47		
	PRODUCT RESPONS	SIBILITY		
	Customer Health &	Safety		
G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement	Not applicable		
G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes	47		

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	Specific Standard Disclosures - Material Aspects				
Indicator	Description	Page number / explanation	Omissions	External Assurance	
	Product & Service La	abeling			
G4-PR3	Type of product and service information required by the organisation's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements	47			
G4-PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes				
G4-PR5	Results of surveys measuring customer satisfaction		Not reported		
	Marketing Communi	ications			
G4-PR6	Sale of banned or disputed products		Not applicable		
G4-PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship, by type of outcomes	48			
	Customer Priva	су			
G4-PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data	47			
	Compliance				
G4-PR9	Monetary value of significant fines for non- compliance with laws and regulations concerning the provision and use of products and services	47			





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