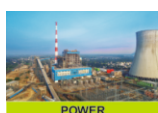


BHEL's SUSTAINABILITY REPORT 2018-19



Engineering a Sustainable Future



POWER



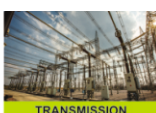
INDUSTRY



RENEWABLES



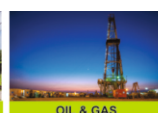
DEFENCE & AEROSPACE



TRANSMISSION



TRANSPORTATION



OIL & GAS



WATER

***Powering progress... Brightening lives
Touching Every Indian Home***





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MESSAGE FROM DIRECTOR (HUMAN RESOURCE)



Dear Stakeholders,

All through its journey since inception, BHEL has been a key contributor to India's industrial development. Presently, it contributes more than 50% of the country's power generation capacity. It has also played a critical role in core sectors like Defence, Aerospace, Transportation, etc.

The concept of sustainable development is deeply embedded into our organization's business process and the same is reflected in our mission statement- "providing sustainable business solutions in the fields of energy, industry and infrastructure".

BHEL functions within a sound framework of Corporate Governance which underlines its commitment to quality of governance, transparency in disclosures, consistent stakeholders' value enhancement and corporate social responsibility. BHEL is also engaging with the society with its social initiatives aimed at community development, health & hygiene, education, environment, protection, disaster management, talent upgradation/skill development among others.

We at BHEL understand that we have not inherited planet earth from our ancestors as a matter of right, on the contrary we are just temporary custodians and it is our responsibility to leave a better planet for ensuring a good & sustainable quality of life for our future generations to prosper. Our concern for environment protection is manifested in our efforts towards development of products having a lesser environmental footprint, use of renewable energy & cleaner fuels having lesser carbon footprint in our operations, recycling of natural resources like raw materials & water to the extent feasible, and responsible waste management practices. It has always been our

endeavour to minimize our environmental footprint across our value chain. We have total in-house installed capacity of 27 MW_p of Solar Power Plants across BHEL units for captive use which is a step in the direction of achieving sustainable energy mix across our operations. This clearly establishes the fact that we at BHEL are not only committed to supply greener technology to our customers but also to assimilate & demonstrate the same ourselves.

Development & Deployment of cleaner technology has always been a mainstay of BHEL's business practice throughout its existence. The Company continues to build upon its legacy of being a technology leader and is working towards helping the nation transition to a cleaner power mix in the coming years and some of these initiatives are as follows:

- BHEL is at the forefront of the indigenous development of nation's first Advanced Ultra Supercritical Technology based plant, which is a pioneer R&D project undertaken jointly with NTPC and Indira Gandhi Centre for Atomic Research (IGCAR). Development of this technology shall not only help in achieving a quantum jump in efficiencies but also reduce the coal consumption as well as CO₂ emission levels by about 11% as compared to Super Critical plants and by about 20% as compared to Subcritical power plants for single unit pf power generation.
- BHEL has developed the secondary turbine cycle of 300 MWe Advanced Heavy Water Reactor (AHWR) Nuclear Power Plant in association with BARC.
- From developing clean coal technologies to converting coal to clean energy sources, BHEL is pioneering cleaner usage of coal in the country. BHEL is the first organization in India to develop





gasification technology specifically for high ash Indian coal, and has successfully developed demonstration plants for this technology.

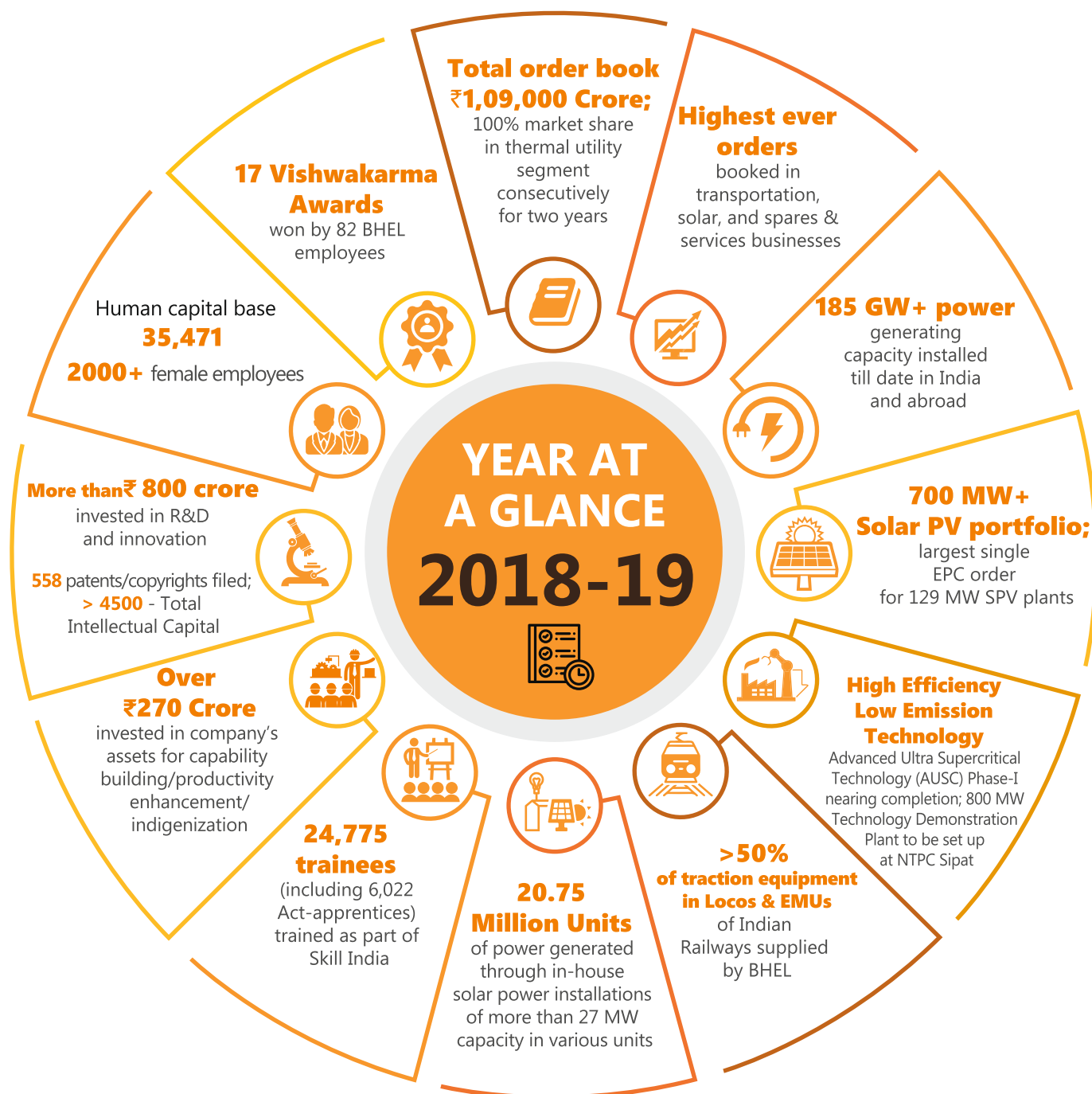
- Spearheading the development and installation of emission control equipment for coal based power plants including FGD systems, high efficiency Electrostatic Precipitators and Selective Catalytic Reduction systems for NOx emission control etc.
- In the field of Electric mobility which is fast emerging as a future mode of transportation to reduce emission from vehicles, BHEL through in-house R&D efforts has developed & successfully tested at ARAI, Motors, Controllers & Charging infrastructure for E-Bus application. BHEL has developed 12 metre electric bus prototype for E-mobility business.

Today, the company faces multiple challenges – in the short term as well as from a long term perspective. Team BHEL is working towards turning these challenges into opportunities by revamping processes, redesigning business models, expanding into new markets / businesses and developing a committed workforce & strong leadership pipeline at all levels. These efforts by Team BHEL will culminate in creating an organization which is sustainable, future-ready and globally recognized as India's leading engineering enterprise.

As Sustainability is a journey, we are treading this path with renewed vigor and poised to contribute as a responsible corporate citizen, more and more towards helping the country meet its commitment for achievement of Sustainable Development Goals in our capacity.

**Yours Sincerely,
(Anil Kapoor)**







CREATING A NEW BHEL, A NEW INDIA

WE ARE...



India's largest
engineering and
manufacturing
enterprise of its kind



The largest contributor
to the country's installed
generation capacity with
>53% share



Present pan-India:
16 manufacturing units,
8 service centres



Second largest
employer in Indian
capital goods industry

WE SERVE...



Power



Industry



Transportation



Renewables



Transmission



Defence & Aerospace



Energy Storage



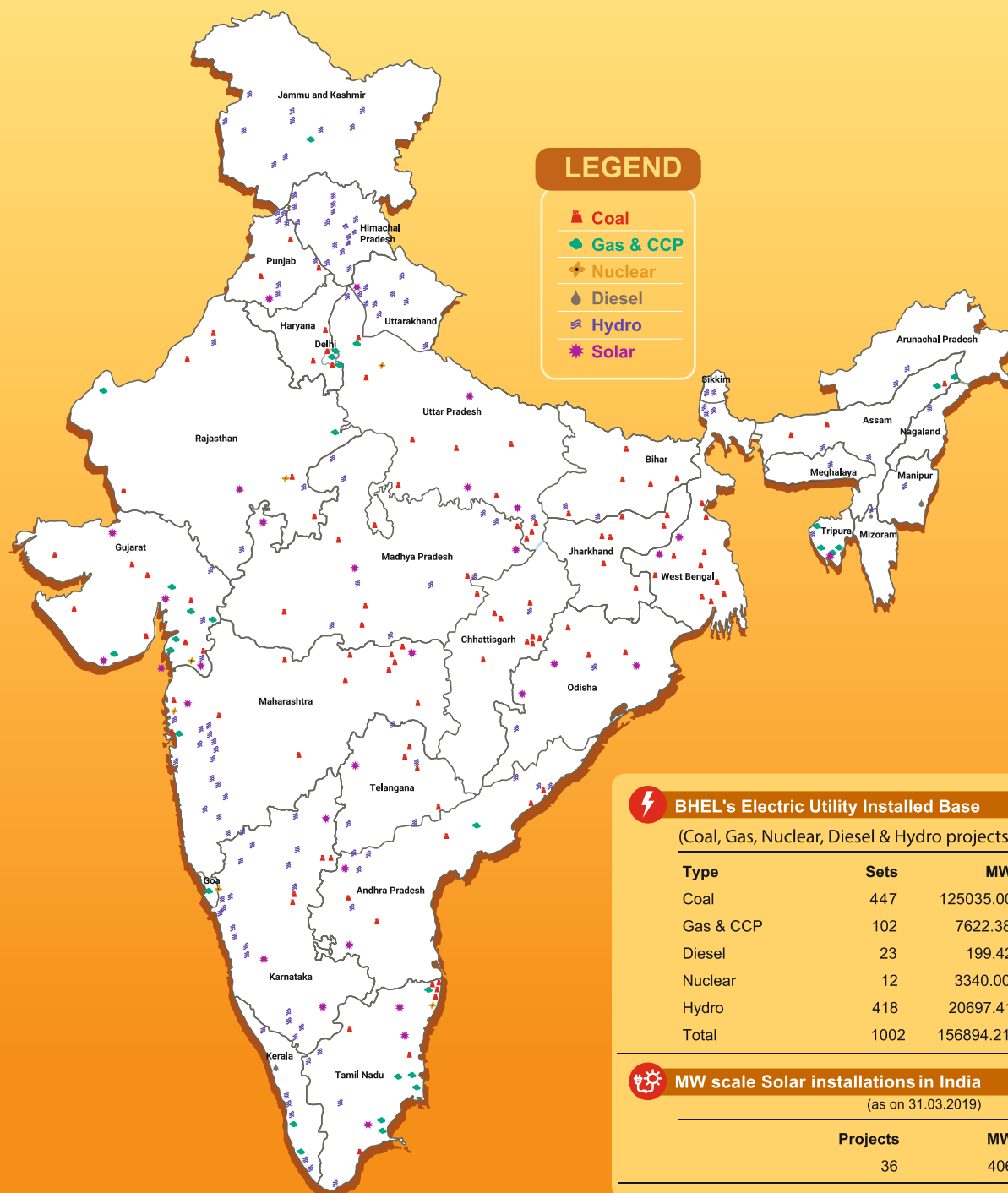
Oil & Gas





BHEL MAKE ELECTRIC UTILITY INSTALLATIONS

Commissioned as on 31.03.2019





ORGANISATIONAL PROFILE

About the organisation

Bharat Heavy Electricals Limited, one of India's largest engineering and manufacturing enterprises in the energy and infrastructure sectors and a leading power equipment manufacturer globally, is a celebration of India's industrial achievements. In its journey of over 55 years, it has gained the status of being one of the strongest pillars of Indian industry. BHEL serves the core sectors of the economy and provides a comprehensive portfolio of products, systems and services to customers in power, transmission, transportation, renewables, water, defence & aerospace, oil & gas, and industry. BHEL has created value for its stakeholders due to the scale and depth of its operations, rich experience, competent manpower, innovative ecosystem, diverse product-mix and focus on sustainable business solutions.

BHEL's commitment to nation building reflects 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 contribution to the society through initiatives in skilling youth, health & hygiene, education, cleanliness and environment protection, to name a few.

Pan-India Presence



With a widespread network of 16 manufacturing facilities, 2 repair units, 4 regional offices, 8 service centres, 1 subsidiary, 3 active joint ventures, 15 regional marketing centres, 3 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.

Powering Progress ... Brightening Lives

Valuing People

- Second largest employer amongst Indian capital goods industry (>35000 work force)
- Participative management culture since 1973
- 2000+ female employees

Technologies for a Sustainable Future

- In house development of Advanced Ultra Supercritical (AUSC) and Coal to Methanol technologies on track
- Spearheading the development and installation of emission control equipment for coal based power plants in India
- 27 MW+ in house solar power installations
- Higher efficiency EHV Transmission systems and products (including ±800 kV HVDC)

Innovation

- R&D Expenditure consistently >2.5% of turnover-highest in Indian engineering field
- 6 technology collaboration agreements signed in last two years
- Five research institutes
- 14 Centres of Excellence
- In-house R&D Centres of 12 manufacturing units & divisions recognized by Department for Scientific & Industrial Research (DSIR)

Growing with society

- Committed to Principles of UN Global Compact
- Signatory to Integrity Pact of Transparency International
- Active contributor to Healthy India, Educated India, Green India and Clean India initiatives
- In-house green coverage of 4.7 million square meters

Going Digital

- Improving performance through remote monitoring and diagnostics systems in power plants
- Enhancing productivity of operations

Making in India since 1964

The worldwide installed base of power generating equipment supplied by BHEL exceeds 185 GW - making it the undisputed leader amongst Indian power plant equipment manufacturers. Considering thermal, nuclear, hydro & gas based power plants, BHEL has installed more than 1000 power generating sets in the country.

BHEL has a widespread footprint in all the inhabited continents of the world with references in 83 countries including Bangladesh, Bhutan, 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, and an additional 6 GW is under execution.

For BHEL's product profile, readers may refer to BHEL's Annual Report 2018-19 (AR 18-19) page 331-340 which can be accessed through the web link:

http://www.bhel.com/financial_information/pdf/18-19/BHEL_AR_2018-19.pdf

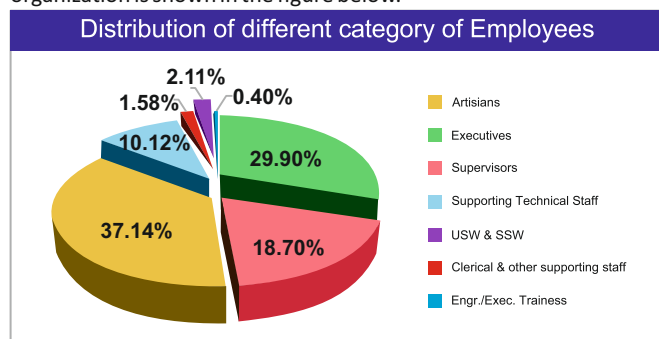
For the details of profile and performance of different business segments of BHEL, the readers may please refer to BHEL's AR 18-19 page 36-61.





Human Resource

BHEL's greatest strength is its highly skilled and committed workforce of 35,471 employees who are the cornerstone of the company's journey of engineering excellence. The company has more than 2000 female employees (nearly 5.79% of the workforce) and it is the second largest employer amongst Indian capital goods industry. Distribution of different categories of employees in the organization is shown in the figure below.



Celebration of Women's Day 2019 at BHEL Corporate Office, New Delhi

Supply Chain of BHEL

BHEL has been supporting Micro, Small and Medium Enterprises (MSMEs) and local suppliers in and around manufacturing units from various fronts. They are part of BHEL's supply chain. 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 such as Confederation of Indian Industry (CII), Federation of Indian Chambers of Commerce and Industry (FICCI), Associated Chambers of Commerce and Industry of India (ASSOCHAM), International Chamber of Commerce (ICC), PHD Chamber of Commerce and Industry (PHD), and Standing Conference of Public Enterprises (SCOPE). Company is also member of World Energy Council (WEC) which enables promoting policies that balance Energy Security, Energy Equity and Environmental Sustainability aspects. BHEL uses various mechanisms of interaction with such bodies (e.g. participation in seminars & meetings, participation in working groups etc.) for putting forth its views and opinions in matter related to policy.

Company's interests are represented via inputs to government queries, knowledge sharing, response to surveys, feedback on industry needs, formation of government policies like GST, fiscal budget, foreign trade, Company Law, Industrial Policy, Capital Goods Policy, Export Promotion, etc. Company participates in multilateral bodies for trade promotion and collaboration with countries like the US, France, Sweden, UK, Russia, Japan, Brunei etc. Company also interacts with government bodies like Department of Heavy Industries (DHI), Department of Public Enterprises (DPE),

Department of Industrial Policy and Promotion (DIPP), NITI Aayog and participates in policy formulation like National Electricity Policy, challenges of employment generation, growth and skill development, Make in India, promotion of in-house R&D, Human Resource Management, roadmap for development of CPSEs, etc.

Company has actively contributed in a responsible manner towards development of policies meant for strengthening of technology base in country, skill development, development of Indian power sector, development of capital goods sector and Indian manufacturing industry, exports, growth of Public Sector Enterprises through better governance, etc.

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 are met. The company's Health, Safety & Environment (HSE) policy is available on the internet and can be accessed through the web link <http://www.bhel.com/healthsafety/HSE%20POLICY.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.

http://www.bhel.com/investor_relations/pdf/BHEL-Code-of-Business-Conduct-and-Ethics-w-e-f-01-04-2019.pdf

The Board has a laid down Charter of the Board of Directors which clearly defines the roles and responsibilities of the Board and individual Directors. Further, the company endeavours to preserve the confidentiality of unpublished price sensitive information and prevent abuse of such information. Towards this, a Board approved policy 'Code of Conduct for Regulating & Reporting Trading by Insiders and for Fair Disclosure - 2015' in line with SEBI (Prohibition of Insider Trading) Regulations - 2015 and Listing Regulations, directs that Board members and other Designated Employees of the company have a duty to safeguard the confidentiality of all such information obtained in the course of their work at the company. The Code also provides for practices and procedures for fair disclosure of unpublished price sensitive information.

http://www.bhel.com/investor_relations/pdf/Insider%20Trading%20Code%202019-w-e-f-01-04-2019.pdf

In line with the requirements of DPE Guidelines on Corporate Governance and the Listing Regulations, BHEL provides progress reports on quarterly basis to DHI and stock exchanges. Further, with a view to ensure effective implementation of the Insider Trading Code, the Company has also in place Internal Operating Guidelines wherein the concerned HoDs of functions/ manufacturing units are required to ensure timely dissemination of information with regard to the Code to Connected Persons pertaining to their area. In line with the Listing Regulations, all Board members and Senior Management personnel affirm annually that they have fully complied with the





provisions of the Code of Business Conduct and Ethics during the relevant financial year and an affirmation to this effect is given by the Chairman & Managing Director in the Annual Report of the Company. For the purpose of the 'Code of Conduct for Regulating & Reporting Trading by Insiders and for Fair Disclosure, 2015', Director (Finance) is the compliance officer of the Company. 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.

<http://www.bhel.com/pdf/BHEL%20Fraud%20Prevention%20Policy.pdf>

<http://www.bhel.com/pdf/Whistle%20Blower%20Policy.pdf>

http://www.bhel.com/assets/downloads/5c35d305718ea_Whistle_Blower.PDF

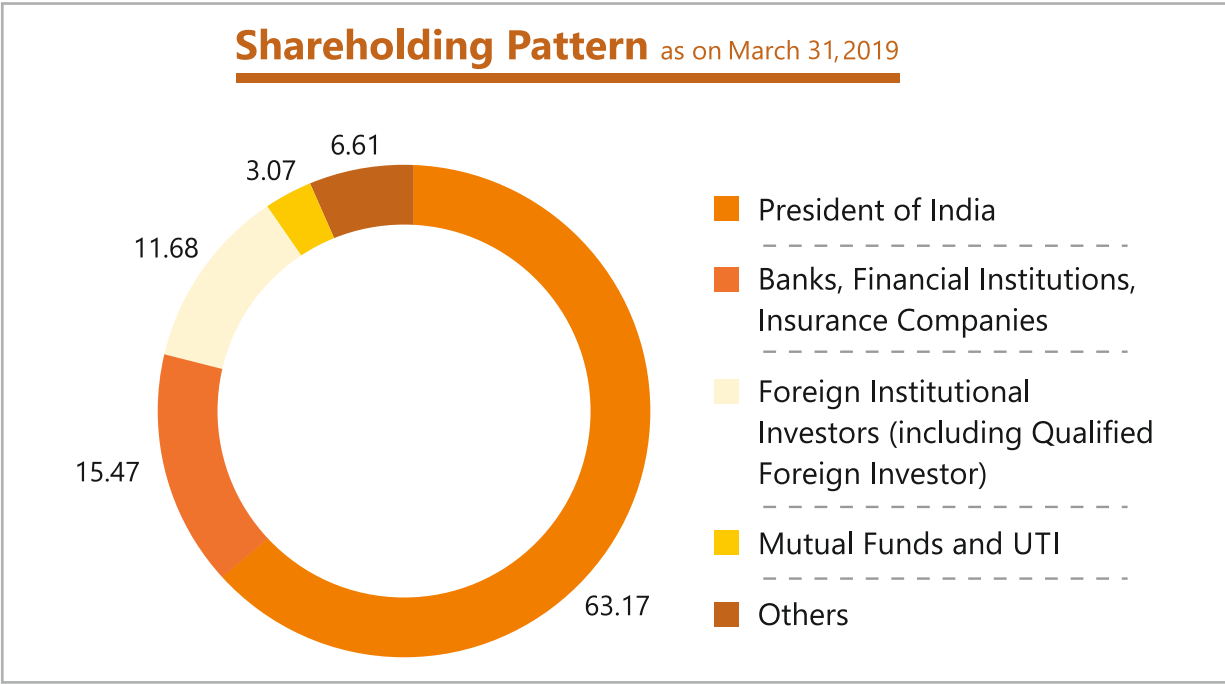
BHEL has signed MoU with Transparency International India (TII) to adopt 'Integrity Pact' to make procurement and contracting more transparent by binding both the parties to ethical conduct. A panel of two Independent External Monitors (IEMs) has been appointed to oversee implementation of Integrity 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.

Three representations received from suppliers during 2018-19 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 M/s Karvy Computershare Private Limited (Registrar & Share Transfer Agent of the company), 1094 complaints were received from the shareholders during the year under review and all complaints were redressed by 31st March, 2019. In addition, a total of 243 public grievance complaints were received from the general public under the Centralized Public Grievance Redressal and Monitoring Scheme during the year 2018-19. All the grievances were resolved.

Nature of ownership and legal form

The Government of India is the majority shareholder of BHEL. The shareholding pattern as on 31.03.2019 is given in the diagram below. For the details about shareholding pattern and changes in the shareholding pattern during 2018-19, reader may please refer to BHEL's AR 18-19 page 96-97.





CORPORATE GOVERNANCE

Our Philosophy on Corporate Governance

BHEL functions within a sound framework of Corporate Governance which underlines its commitment to quality of governance, transparency in disclosures, consistent stakeholders' value enhancement and corporate social responsibility. BHEL endeavours to transcend beyond the regulatory structure and basic requirements of corporate governance, focusing consistently towards building confidence of its shareholders, customers, employees, suppliers and the society. BHEL's corporate governance framework rests upon the cornerstones of transparency, full disclosure, independent monitoring and fairness to all, especially minority shareholders.

The following principles strengthen Corporate Governance in BHEL:

- Independence and versatility of the Board
- Integrity and ethical behaviour of all employees
- Recognition of obligations towards all stakeholders – Shareholders, Customers, Employees, Suppliers and the Society
- High degree of disclosure and transparency levels
- Full Legal and Regulatory compliance in all areas in which the Company operates
- Achievement of goals with compassion for people and environment



The Company believes in conducting business in a manner that complies with the Corporate Governance procedures and Code of Conduct, exemplifies each of the core values and positions BHEL to deliver long-term returns to the shareholders, favourable outcomes to the customers, attractive opportunities to the employees, giving an opportunity to the suppliers to partner the Company in progress and enrichment of society.

Governance Structure at BHEL

Pursuant to Section 2(45) of the Companies Act, 2013, BHEL is a 'Government Company' as 63.17% of the total paid-up share capital of the Company is held by the Central Government through the President of India.

The composition of the Board of Directors as on March 31, 2019 is given in the table. The composition of Board of Directors of BHEL has

Category of Directors	Board Structure	Actual Strength as on March 31, 2019
Chairman & Managing Director	1	1
Whole-time Executive (Functional) Directors	5	5
Part-time Official Directors (Government Nominees) representing the Ministry of Heavy Industries & Public Enterprises, Government of India	2	2
Part-time Non-official (Independent) Directors	8	5
TOTAL	16	13

an appropriate mix of Executive Directors represented by Functional Directors including CMD and Non-Executive Directors represented by Government Nominees & Independent Directors, to maintain the independence of the Board and to separate the Board functions of management and control.

As BHEL is a government company, all directors on its board viz. Functional Directors, Government Nominee Directors and Independent Directors are selected and appointed by the government as per a well laid down process for each category of directors. The requirements of core skills, expertise and competence required for the board to function effectively, in context of business segment BHEL operates in, forms an integral part of the government's process of selection of these directors. Therefore, the board of BHEL by itself does not identify any such core skills or competence required for the job.

The Independent Directors play an important role in deliberations at the Board and Committee meetings and bring to the Company their expertise in the fields of engineering, finance, management, law, public policy etc. The Independent Directors are part of important Committees constituted by the Board such as the Audit Committee, Nomination & Remuneration Committee, Stakeholders Relationship Committee and CSR Committee. In terms of Companies Act, 2013 and Listing Regulations, the Audit Committee and the Nomination & Remuneration Committee are chaired by an Independent Director and function within their respective defined terms of references.

Further, in line with DPE Office Memorandum (OM) dated December 28, 2012 on Model Role & Responsibilities of Non-Official Directors for CPSEs, the Board had constituted a Committee of Independent Directors. The said Committee is in compliance with the requirements of Listing Regulations and the Code of Independent Directors under Companies Act, 2013. The minutes of all the Board Level Committee Meetings are circulated and discussed in the Board Meetings.





Board's Responsibilities

The Board's mandate is to oversee the Company's strategic direction, review and monitor corporate performance, ensure regulatory compliance and safeguard the interests of the shareholders. For the agenda placed before the Board, the readers may please refer to page 81 of AR 18-19.

In addition to the above, the Board of Directors has also constituted various statutory and technical committees such as the Board Level Audit Committee, Stakeholders Relationship Committee, Share Transfer Committee, HR Committee, Board level Committee for CSR, Committee of Independent Directors, Nomination & Remuneration Committee, Board Level Risk Management Committee, Committee on Arbitration & Major Legal Disputes, Board Level Committee on Mergers & Acquisitions, Board Level Committee on Alternative dispute, and Buy back Committee to ensure in-depth analysis & review as well as provide requisite guidance, advice and recommendations on important matters. The procedures for conducting meetings of these Committees are similar to that followed for the Board of Directors.

Charter of the Board of Directors

For the purpose of clearly defining the roles and responsibilities of the Board and individual Directors, the Board has laid down a Charter of the Board of Directors. The Charter also articulates our corporate governance objectives and approach.

In line with the DPE guidelines, listing agreement and with the objective of providing the Directors a) insight into guidelines and procedures for successful discharge of their statutory duties, b) better understanding of the business environment to envision the future and develop strategies and c) need based training to meet the Specific requirements of the board members, BHEL Board has approved a policy for Training of Directors. It covers both general and specific trainings more tuned towards Company specific areas.

Delegating Authority

BHEL Board has constituted 12 Board Level Committees. For details about these board level committees, their Terms of Reference, Composition of Committee, Name of Members & Chairperson, meetings and attendance, reader may please refer to page 82-91 of BHEL's AR 18-19.

In pursuance of the DPE Guidelines on Corporate Governance for Central Public Sector Enterprises and Clause 49 of the Listing Agreement between listed Companies & the Stock Exchanges and Section 177 of the Companies Act, 2013, a detailed Whistle Blower Policy was drafted by the Company and it was duly approved by the Board of Directors in its 464th meeting held on August 12, 2014. The policy is also in line with Listing Regulations. Subsequent to this, a Circular notifying the Whistle Blower Policy and informing the contact details of the Competent Authority and of Chairman, Audit Committee was issued for the notice of all employees.

A copy of the Whistle Blower Policy has also been placed on the website of the Company 'www.bhel.com' for wide publicity. Changes in address, contact number(s) and email address of the Competent Authority and Chairman, Audit Committee are being notified from time to time.

The complaints received under the Policy are being processed as per the guidelines in this regard. For other details related to Corporate

governance, the readers may please refer to page 78-99 of BHEL's AR 18-19.

Diversity and Inclusivity

BHEL is a pan India Organization and recruitment is open to all eligible candidates irrespective of States and communities. BHEL has 5.79% of its workforce as Women Employees. The overall representation of SC/ST/OBC employees in total manpower as on 31/12/2018 was 20.47%, 7.05% and 33.15% for SCs, STs and OBCs respectively. The percentages in direct recruitment during the year 2018 were 10.99%, 5.50% and 20.88% for SCs, STs and OBCs respectively.

Although the candidates who join BHEL belong to different

Founder
member of
WIPS

Workshop &
Activities for
women

Child Care /
Maternity
leave

Skits , Training

Unbiased
policies

ICC at Unit
level

Full compliance of
govt. reservation
policy

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

BHEL has in place a Board approved Risk Management Charter & Policy to implement a structured and comprehensive enterprise risk management system. This charter is intended to establish a common understanding, language and methodology for identifying, assessing, responding, monitoring and reporting risks and to provide assurance to the management that key risks are being properly identified and effectively managed in the company.

A 'Board level Risk Management Committee' (BLRMC) is assigned responsibility of reviewing the company's Risk Governance structure, Risk Assessment & Risk Management framework, Guidelines, Policies and Processes. The Board/ BLRMC regularly review major risk areas.

Key risks faced by the company are analysed in detail by Risk Management Steering Committee (RMSC), which is responsible for adopting & implementing the risk management framework and leading the risk management initiative across the company.

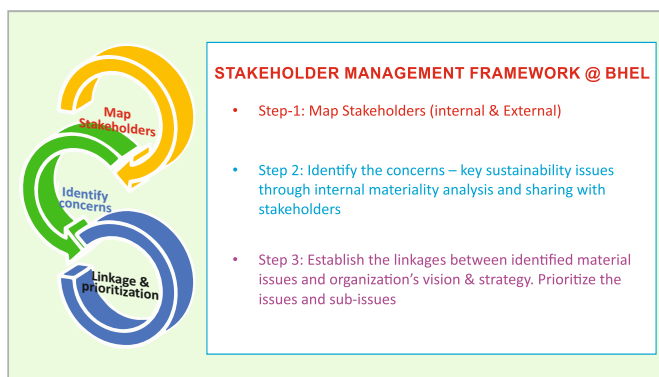
Chief Risk Officer (CRO), the convener of BLRMC & RMSC, is responsible for periodic reporting on risk management to Board/ BLRMC. Risk management committees at unit level analyse the risks concerned to their respective areas, prepare mitigation plans, ensure their implementation and also inform the top management, if required.

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	<ul style="list-style-type: none"> Established organizational level Cyber Security Operations Centre (SOC), a facility in which an information security team continuously monitor and improve organization's security posture Enhancement of Cyber SOC by integrating 23000+ end points across BHEL under the SOC Consolidation of Internet Gateways to minimize chances of data leakage points Enhancing BHEL – Computer Emergency Response Team (B-CERT) in-line with CERT-In
Excess domestic manufacturing capacities, changes in business mix due to policy changes and increasing competition leading to lower order book	<ul style="list-style-type: none"> Focus on development of non-coal based business Expanding offerings and diversification
Technology readiness to meet current/ future market requirements	<ul style="list-style-type: none"> In house development of new products/ Technologies Technology collaboration agreement with suitable partners
Rising debtors	<ul style="list-style-type: none"> Formation of special groups to accelerate cash collection Swift closure of punch points with customers Better scheduling of supplies Flagging the issues with government in case of state utilities

Stakeholder Identification & Engagement

Stakeholder engagement is a critical process that helps us to understand our key environmental and social impacts, identify risks and develop innovative solutions to sustainability challenges. BHEL stakeholders include - Customers, Employees, Shareholders, Vendors, and Society. BHEL has processes in place to ensure inclusion of stakeholder concerns and expectations.



BHEL's identified stakeholders are the groups which either affect the business of BHEL or getting affected by our business and this relationship forms the basis on which these specific groups have been identified by the organization as its stakeholders.

Key issues are identified through ongoing stakeholder engagement and addressed by programmes or action plans with clear and measurable targets. Based on the stakeholder expectations, material issues are identified. These issues are viewed in the Sustainability Context of the organization. Then finally the issues which are perceived as important to both, the key stakeholders and to the company are prioritized and reported as key Sustainability issues for the organization with regards to its sustainability performance.

BHEL has clearly identified the disadvantaged, vulnerable poor, needy & marginalized stakeholder 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 released on 21.10.2014.

Some of the stakeholder engagement activities undertaken during 2018-19 are given in the table below.





Modes of Stakeholder Engagement & Activities

Stakeholder Group	Mode of Engagement	Typical list of activities conducted in 2018-19
Stakeholders	Shareholders- Annual Report, Press Releases, Investor Relation	<ul style="list-style-type: none"> Annual General Meeting In order to ensure transparency, a separate section on Corporate Governance is annexed every year with the Annual Report of the Company, wherein all disclosures are made as per the listing requirements Conference calls with Investors by CMD/Functional Directors. Disclosure of information on the internet Filing of information with Stock exchanges News Releases and Press conferences
	Government - MoU, Reports	<ul style="list-style-type: none"> Parliamentary Committee meetings Gol has major shareholding in BHEL and hence company has several established mechanisms in place to communicate with Government authorities MoU formulation and performance review by Inter Ministerial Committee (IMC) Interaction with Ministry of Heavy Industry & Public Enterprises at senior most level on company performance as well as Policy related issues Adherence to values/ processes in line with guidelines given by Government institutions like Parliamentary committees, CVC, CAG, Ministry of Heavy Industry etc.
Customer	Customers' meet, surveys	<ul style="list-style-type: none"> Customer Satisfaction Surveys Customer's Meet Face to face interaction Project execution schedule by Site-in-charge everyday Customer care management system (CCMS) Site Action Request (SAR) / Commissioning Action Request (CAR)
Suppliers	Vendors Meet	<ul style="list-style-type: none"> Vendor Satisfaction Surveys by units Daily Milestone review by Project Site In-charge Contract execution by head of functions as and when needed. Vendor meets at unit level Partnership through MoUs / Rate Contracts
Employees	In-house magazine, Message from CMD, Employee engagement survey, Joint Committee, Plant Council, Shop Council	<ul style="list-style-type: none"> Employees Satisfaction Surveys Top down communication through Management Committee meetings, Monthly Communication meetings, Project review meeting IT enabled communication e.g. Internet and e-mails, Intranet, e-Map etc. Display Boards, TV displays etc. Bottom up communication through Joint Committee, Plant Council, Shop Council, General communication meeting etc. Horizontal communication through daily communication meeting at sites/shop floor, Video Conferencing, Audio Conferencing, IP phone etc.
Society	CSR Programme, Baseline Survey / need identification	<ul style="list-style-type: none"> Society Satisfaction Surveys by units Continuous interaction with Local administration/District authorities by senior leaders at units /project sites Medical camps/ Blood donation camps at units/Sites/adopted villages etc. Creation of educational infrastructure for local people at manufacturing units Other social welfare initiatives



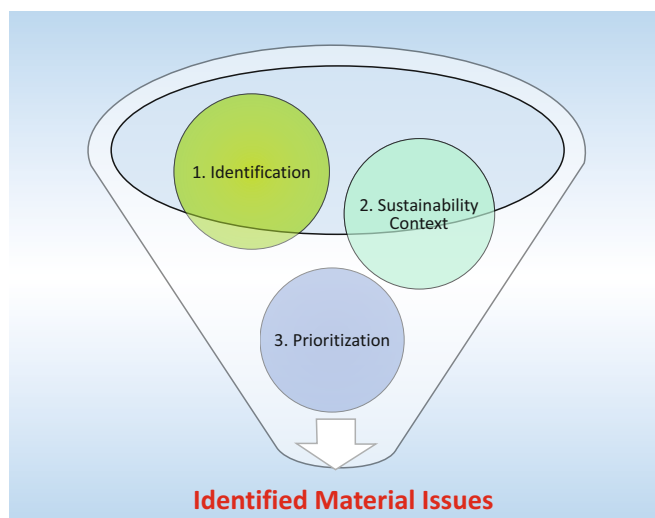


Some of the key topics and concerns which have been raised by the stakeholders during 2018-19 and the steps being taken by the organization to address these concerns and risks are given in the table below.

Material issues identified	Strategic goals set to resolve these issues
High material cost to turnover ratio	Means are being explored to reduce the material content of our product so as to reduce its environmental footprint over its life cycle
Safety performance	<ul style="list-style-type: none"> • Safety Performance review is being done more critically • Safety function at project sites is being strengthened • Heightened efforts are being made to involve all the employees in improving safety performance
Expectation of stakeholders in vicinity of our geographical footprint	More focused CSR initiatives are being taken to address the expectations of the stakeholders. Sustainability and scalability are the two important parameters identified for such projects

Process for defining report content and aspect boundaries

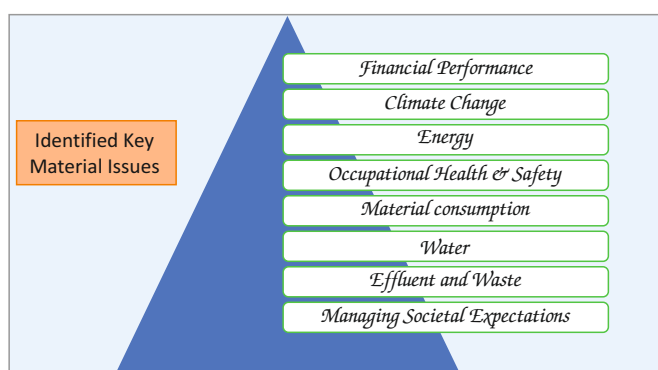
Our process of materiality analysis is a three stage process. In the first stage, plethora of issues which are significant for the stakeholders of the company and which may affect or have a potential to affect the sustainability of business of the organization are identified. It is done through stakeholder engagement / feedback / brainstorming. In the next stage, these identified issues are analysed in sustainability context to analyse the importance of the identified issue for the organizations' Economic, Environmental and Social Impact and how the issue is going to influence the stakeholders' decision and assessment of BHEL. Then in the third & final stage, the relevant issues which are material to company as well as the stakeholders are prioritised through a simple matrix.



For the reporting period 2018-19, like the previous year the following issues have been found to be key material issues for the company and the same are reported in this document in detail.

It may also be noted that major impact of our product and services lies outside our boundary during the life cycle of power plant which is beyond the control of BHEL. To minimize the environmental impacts of our products and services, BHEL is continuously striving for more efficient power plant equipment and development of greener technologies. Also, emission during transportation of our products across our presence is significant but we are yet to initiate capturing the data for the same.

There is no significant change in our operations or supply chain from previous reporting periods.



Reporting Practice

BHEL follows the practice of publication of its annual Sustainability report. BHEL's sustainability report for 2018-19 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 AR 18-19. The present sustainability report captures the brief snapshots of our journey traversed while treading the path of Sustainability during 2018-19. 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 2018-19.

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





OUR ENVIRONMENTAL PERFORMANCE

Management Approach – Sustainability

Triple bottom line approach for Sustainable Development has become an integral part of our business processes as well as culture. Our commitment for sustainability is amply reflected from our mission statement - “Providing Sustainable Business Solutions in the fields of Energy, Industry & Infrastructure”. We are fully committed to running our business operations within the carrying capacity of the environment by minimizing our environmental footprint and contributing towards inclusive development of society through our CSR programme.

Our concern for safeguarding the environment is reflected in our concerted efforts towards development of products having lesser environmental footprint, enhanced use of green energy inside our premises for captive use, use of cleaner fuels, enhanced usages of energy efficient lighting fixtures and equipment, tree plantation, efficient usages of natural resources and sound waste management practices. These are the major thrust areas under sustainable development in the organization.

As sustainable business solution provider, we offer EPC solutions for Solar Photo Voltaic (SPV) Power Plants with and without Battery Energy Storage System (BESS), Roof top, and floating solar power plants and Solar-based irrigation pumps. We have commissioned 61 MW SPV plants during FY 18-19 including:



BHEL has successfully completed the purification of Telibandha Lake at Raipur

- 25 MW GIPCL, Gujarat
- 15 MW GACL Charanka
- 10 MW BEL Bolangir
- 5 MW HPPCL Berra Dol
- 5 MW WBSEDCL Santhaldih
- 1 MW BEL Medak

With this BHEL's solar portfolio stands at 716 MW as on 31.03.2019, including projects under execution. Further, we provide comprehensive solutions for sustainable use of water resources through:

- Pre Treatment Plants (PT)
- Sea Water Reverse Osmosis (SWRO) and Demineralization (DM) Plants
- Effluent Treatment Plants (ETP)

- Sewage Treatment Plant (STP) and Tertiary Treatment Plants (TTP)
- Zero Liquid Discharge (ZLD) Systems

We have completed Telibandha Lake purification project for Raipur Smart City Limited and our effort has been well appreciated by our customer. Due to use of green energy inside our premises generated through the solar systems installed in-house, we have achieved a carbon footprint avoidance of nearly 26499 Metric Tonnes of carbon dioxide equivalent (MT CO₂-e) during 2018-19 which is nearly 71.5% more as compared to 2017-18 figure.

As a responsible corporate entity, BHEL tries to create awareness amongst the families of our employees, students, people residing in the vicinity of our physical footprint and other stakeholders as to how they can contribute towards protection of environment as an individual, by involving them in celebrating World Environment Day (WED) with wider participation. Various programmes organised during WED – 2018 included mass tree plantation, competitions for students like - poster making, quiz, slogan writing, elocution, environmental march for creating awareness about environment etc.

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 concept 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 234,327 of AR 2018-19)**

Group of materials:	2014-15	2015-16	2016-17	2017-18	2018-19
Ferrous materials	2415.50	2311.13	2021.85	2431.11	3461.21
Non-ferrous materials	381.37	296.60	277.64	333.09	313.91
Insulating materials	219.83	159.08	142.81	168.29	168.39
Insulated cables and Magnet wires	78.97	33.14	57.33	26.76	20.46
Components	6040.61	5547.26	5955.69	4944.14	6774.46
Others	4567.71	4654.65	4647.49	4193.06	4618.65
Total cost of materials consumed	13703.99	13001.86	13102.81	12118.35	15030.08
Turnover	29542	25091	27740	27850	29349
Accretion/Decretion in inventories	338	-210	-994	-736	1073
Gross Turnover	29880	24881	26746	27114	30422





Direct material cost as % to turnover has gone up in FY 2018-19 as compared to FY 2017-18. This is mainly due to change in composition of turnover, project / product mix, higher content of imported bought outs due to conditions stipulated under DJU (Deed of Joint Undertaking) and depleting margins.

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. However, the data is reported using the metric **Cost of materials & components consumed as % of Turnover for last 5 years** and the graph is shown here.



Conservation of Resource through Sand Reclamation at CFFP Haridwar

CFFP has been using Silica Sand, for its Moulding function. About 9000 MT valuing more than 3 Crore Rupees, of Silica sand is used in a year. The sand being a natural resource is very precious and therefore required to be used judiciously. As the waste sand lumps are hazardous, sand reclaiming not only saves expenditure but also reduces the environment hazard. Approx. 20% of this sand has been reclaimed through Mechanical Reclamation by Steel Foundry. In year 2018-19, a Thermal Reclamation Plant is installed, to enhance the quantum of reclamation. The functional plant shall enable CFFP in reclaiming about more than 40% of Sand thereby conserving the natural resource and reduction of associated expenditure making it a fit case for environmental sustainability.

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 2018-19 which included:

- In-house recycling of ferrous scrap generated at units wherever feasible and despatch of ferrous scrap to CFFP Haridwar for recycling in making large castings & forgings,
- Installation of Thermal sand reclamation unit, (capacity 10 ton/day) at CFFP Haridwar, which along with mechanical sand reclamation will help in reducing silica sand procurement substantially.
- Recycling and reuse of packing wood for packaging, making storage cup-boards etc.,
- Reuse of waste oil after reclamation,
- Recirculation of hydraulic oil in machines,
- Use of project site returned cables and cut pieces for in-house electrical works,
- Reduction of use of single use plastic across the factories,
- Recycling of 32.4 KL of coolant, 1574 MT of sand in the process at HEP Bhopal etc.

Sustainable Energy Management

Managing energy requirements for our establishments in an efficient manner has always been a hallmark of our energy management process. Regular energy audits, sharing of good practices amongst the units for use of modern energy efficiency fixtures, certification of energy intensive unit to ISO 50001, use of cleaner fuels to attain sustainable energy mix are the processes put in place which enables managing our energy requirement in a sustainable manner.

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. There has been a minor adjustment in Regasified Liquefied Natural Gas (RLNG) consumption data due to which the energy consumption figures for the last four years have been reinstated.



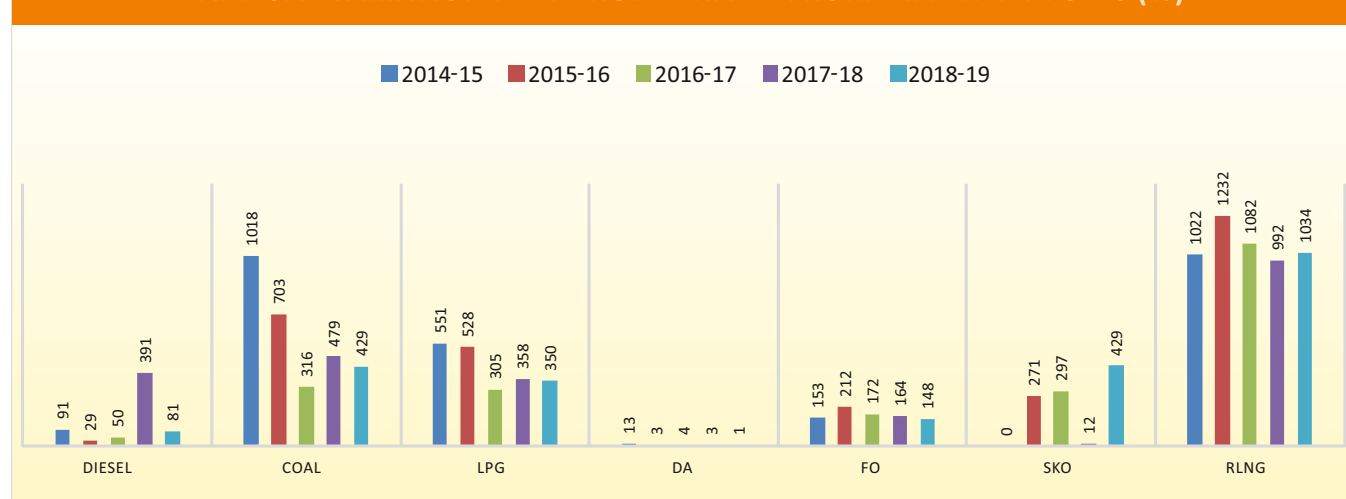


Total Direct & Indirect energy consumption in BHEL units in TJ

Description	Energy Consumed in TJ (2014-15)	Energy Consumed in TJ (2015-16)	Energy Consumed in TJ (2016-17)	Energy Consumed in TJ (2017-18)	Energy Consumed in TJ (2018-19)
Direct Energy					
Primary Energy (Fuels Consumed like Diesel, Coal, LPG, Kerosene etc.)	2847.88	2978.41	2226.94	2398.60	2471.92
Primary Energy Produced (Through Solar Energy generation)	25.34	29.26	53.35	56.20	99.37
Indirect Energy					
Electricity Consumed	1093	1154.34	1160.36	1170.78	1128.38
Total Energy consumed (TJ)	3966.22	4162.01	3440.65	3625.58	3699.67
Turnover (₹ Crore)	29542	25091	27740	27850	29349
Accretion/Decretion in inventories	338	-210	-994	-736	1073
Gross Turnover	29880	24881	26746	27114	30422
Energy Intensity (GJ / Lakh ₹ of GTO)	1.33	1.67	1.29	1.34	1.22
Energy Productivity (Lakh ₹ GTO achieved / GJ)	0.75	0.60	0.78	0.75	0.82
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.

ANNUAL VARIATION IN ENERGY DERIVED FROM DIFFERENT FUELS (TJ)

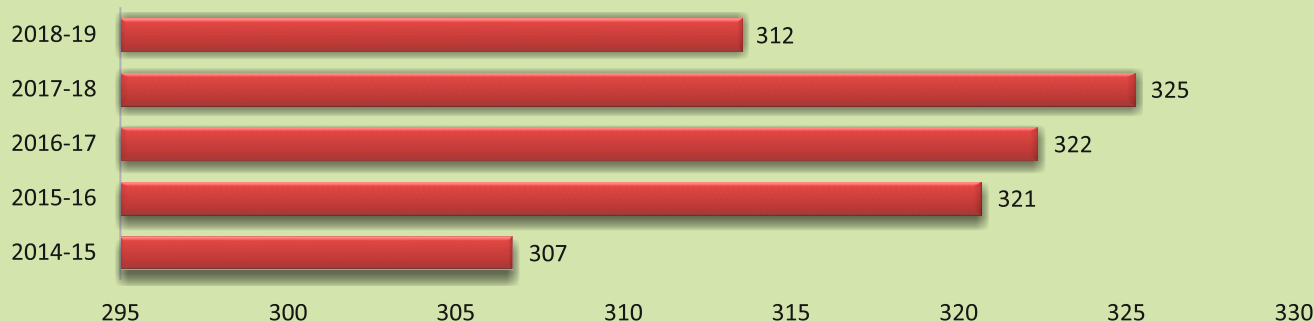


As can be seen from the figure, contribution of coal in terms of weight is coming down on year on year basis in our energy mix.

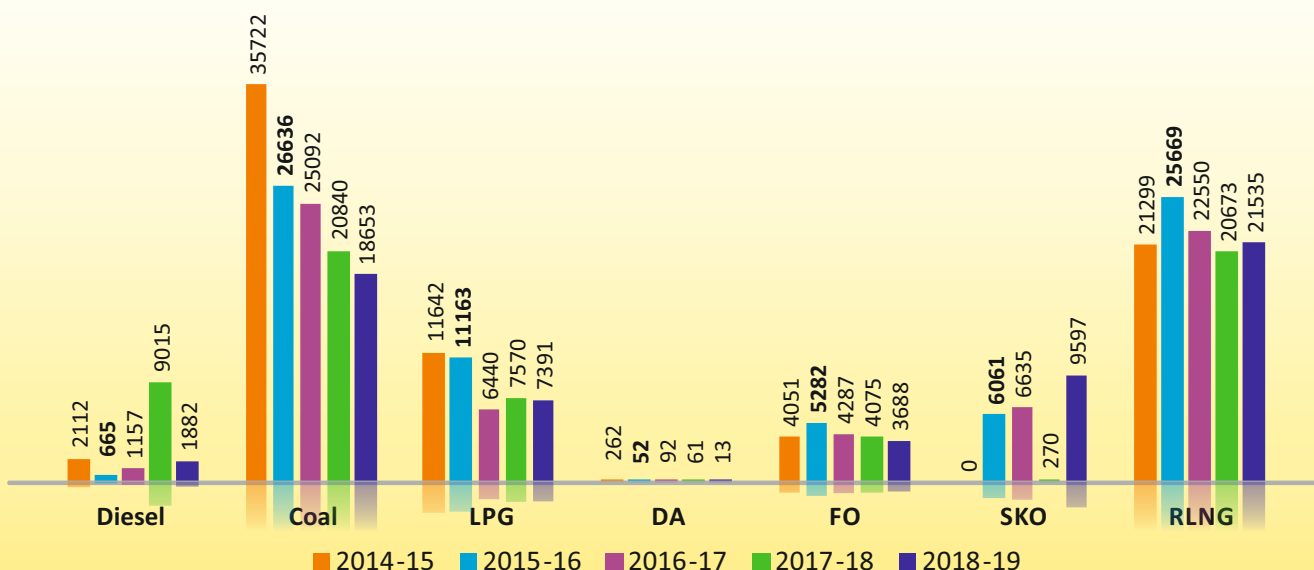




Total Electricity Consumption at Units of BHEL in Million Kwh

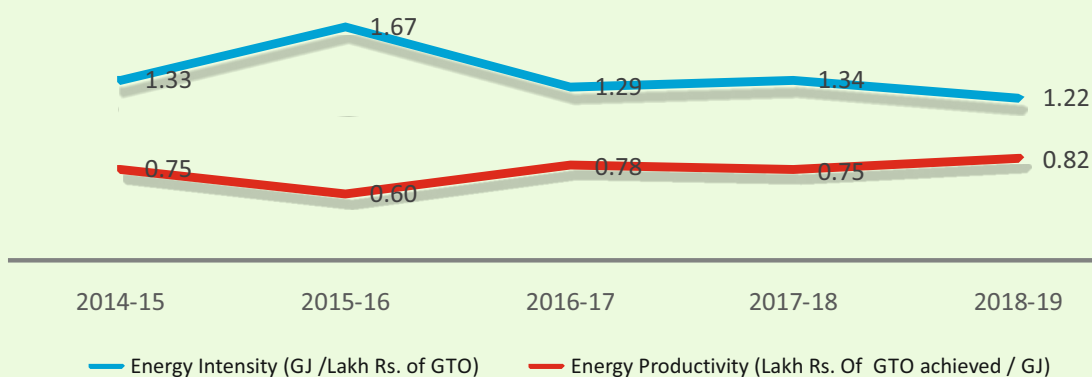


Annual variation in quantity of fuel used by weight (MT)



As can be seen from the table, 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 1.37. 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 0.6 to 0.82 and the average figure stood at 0.74.

Energy Intensity/productivity data





Energy conservation/efficiency

During the year 2018-19, specific activities carried out at our units pertaining to energy conservation and energy efficiency are:

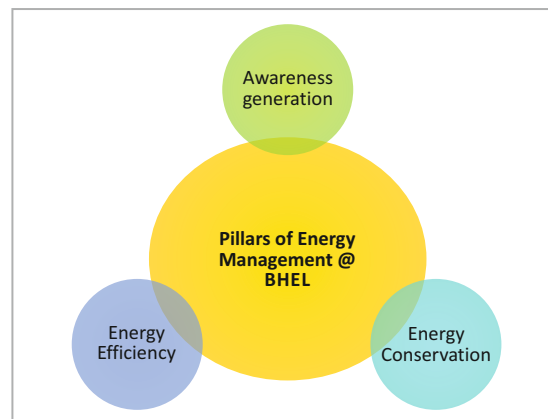
- Replacement of conventional lights with energy efficient LEDs.
- Installation of automatic power factor controller.
- Installation of time controlled switch in coolers.
- Auto on – off water level control system in main water tank for energy saving.
- Use of sensors for electrical appliances.
- Centralised control panel for all equipment and accessories in some of the offices.
- Arresting leakages in compressed air system.
- Installation of FRP sheets in the shops to harness natural light
- Use of turbo ventilators inside the factory sheds for improved ventilation
- Laying of solar panels on the roof of buildings inside factory for generation of electricity used for lighting purpose at EDN – Bengaluru etc.

Employees across the company were imparted awareness on energy conservation through awareness generation camps organized in BHEL townships for employees & their family members.

A pool of certified Energy Auditors/ Managers has been created for conducting energy audits. Energy Audits were conducted at units at regular periodicity, opportunities for improvement were identified and implemented as energy conservation projects, in a planned manner.

To promote energy efficiency, Units have been obtaining ISO 50001:2011 (Energy Management System) certification in a phased manner. CFFP-Haridwar, HEEP-Haridwar, HEP-Bhopal, HPEP-Hyderabad, EPD-Bangalore, HPBP-Trichy, SSTP- Trichy, PPPU-Thirumayam and BAP-Ranipet Units have received ISO 50001 certification.

List of various projects related to energy conservation / efficiency / renewable energy generation completed during 2018-19 at our units is given in the table below.



Energy conservation through changing the lining of furnaces

One of our energy intensive unit is having 9 Reheating and 18 Heat Treatment furnaces running on Natural Gas and the fuel bill for these furnaces for 2018-19 was nearly Rs. 67 Crore. To optimize the consumption of fuel through curtailment of heat losses, an improved insulation system for furnaces known as Monolane lining was employed instead of traditional ceramic fibre layering. It reduces furnace's skin temperature and thereby rationalize the consumption of fuel. In year 2018-19, two Heat Treatment furnaces of Steel Foundry were lined with Monolane which are enabling fuel saving. Moreover, the overall life of this lining is significantly more than Ceramic Fibre lining, making it a fit case for environmental sustainability.

Energy Conservation Projects - FY 2018-19

Sr. No.	Unit	Project Title	Energy Saving (kWh)/Yr
1	HPBP Trichy	Installation of 250 W induction lamps in place of 400 W metal halide lamps in shop-floors (100 nos.).	54000
2		Installation of (2ft x 2ft) 30 W LED fittings in offices (18 nos.).	3596
3		Installation of 80 W induction fittings in place of 150 W sodium vapour lamps (30 nos.).	9198
4		Energy savings by optimizing the pressure settings in hydraulic power packs in tube bending machines (CH6 & Herber).	5000
5		Up gradation of Centrifugal Type Air compressor with Screw Type air compressor of suitable capacity for Energy efficient operation at Compressor House.	90000
6		Conversion of 400 W HPSV lamp fittings in tower lights into 200 W LED fittings (70 nos.).	61320
7		Installation of energy efficient LED lights in place of HPSV lights (180 nos.).	24002
8		Installation of energy efficient BLDC ceiling fans in VPN office area (30 nos.).	3600
9		Conversion of one HPSV High Mast Lighting with LED Lighting.	32412
10		Installation of 110 W LED bridge light in the place of 500 W Halogen lamps in Gantry cranes at RPS Yard (32 nos.).	18000





Sr. No.	Unit	Project Title	Energy Saving (kWh)/Yr
11	BAP Ranipet	Drive with AC motor in BUC 63 machine.	14400
12		Installation of 18 W LED tube lights in place of 40 W florescent tube lights (500 nos.).	21600
13		Installation of 9 W LED tube lights in place of 20 W florescent tube lights (350 nos.).	9240
14		Synchronised operation of 1000kVA DG sets (3 nos.).	32000
15		Retrofit of one semi gantry cranes with VFD drive and motors in place of slip ring induction motors and panels.	18000
16	CFFP Haridwar	Replacement of 200 nos. street lights of 150 /70 W by 23 W Pin type Led Lights.	50808
17		Installation of Alarm system to avoid overflow of water from pump house.	5000
18		Installation of Turbo-ventilators in various shops.	60000
19	CFP Rudrapur	Installation of time controlled switch in water cooler.	7008
20		Installation of auto ON-OFF water level control switch in main water tank.	1812
21		Replacement of High Mast MH Lamp with LED Lamp.	24090
22		Installation of 20 KVA online UPS for Plant lighting load at night during power supply failure.	24090
23	EDN Bengaluru	Replacement of conventional 36 W FTL/CFL with 20 W LED lamps (1700 nos.).	102000
24		Installation of Twi-light sensor/ Timer controls for street lights.	33000
25		Installation of 50kW Roof Top Grid Interactive PV System on Bldg-19	75000
26		Installation of 30kW Roof Top Grid Interactive PV System on Bldg-14,47.	45000
27		Installation of 30kW Roof Top Grid Interactive PV System on Bldg-15.	45000
28		Installation of 20kW Roof Top Grid Interactive PV System on Shipping building.	30000
29	EPD Bengaluru	Replacement of 500 nos. of conventional 4 feet Tube lights with LED lights.	65700
30		Replacement of VFD's to Kilns.	54800
31		Installation of 30 nos. of Solar Powered Street Lights at Main gate periphery.	1182.6
32		Improving the operational efficiency of 2 X 1000 KVA transformers at Power House. Switching off 1 transformer during non-peak hours in night shift.	105120
33	HEP Bhopal	Steam condensate recovery from Electroplating & Phosphating division.	157005
34		Replacement of 250 W High Bay HPSV overhead light fitting with 120 W energy efficient LED light fitting (100 nos.).	56940
35		Replacement of 2x36 W tube light fitting with 2X 20 W energy efficient LED light fitting (200 nos.).	15360
36		Replacement of FD fan motor of 01 no. boiler with IE3 efficiency class motor.	9110
37		Thermal insulation of boiler steam header valves & other bare steam pipelines of boiler.	33900
38		Energy saving by installation of remote operated isolation valves in compressed air pipelines for individual blocks.	10400





Sr. No.	Unit	Project Title	Energy Saving (kWh)/Yr
39	HPEP	Installation of Daylight pipes in CMM stores.	30240
40	Hyderabad	Replacement of 100 no 75 W SV lamps with 40 W LED street lights.	12775
41	IP Jagdishpur	Replacement of 40 W FLT with 20 W LED Tube Light(200 Nos).	30660
42		Replacement of 250 W HPMV Lamp with 70 W LED High bay lamp in plant (20 nos.).	21024
43		Replacement of Old ACs with star rated ACs at offices (04 nos.).	44505
44	IVP Goindwal	Improvement in compressed air system by enhancing the Air Receiver Capacity from 1.58 cubic meter to 3 cubic meter.	16140
45		Retrofitting of 250 W MH & SV Lamps fitting with LED Bulb 100 W with E40 base.	1920
46		Replacement of existing 36 nos. ceiling fans (110 W) with Energy Efficient ceiling fans (50 W) from office buildings.	3672
47	PPPU	Replacement of 400 W MH Luminaire with 200W LED (100 nos.).	60000
48	Thirumayam	Replacement of 2x400 W High Mast Light into 2x200 W LED Luminaire (24 nos.).	38544
49		Replacement of 400 W MH Luminaire with 200 W LED (200 nos.).	120000
50	HERP Varanasi	Replacement of 36/40 W tube lights with 22 W LED tube lights in all offices.	
51		Replacement of old re-wounded ceiling fans (60-75 W) with energy saving fans of 50 W.	
52		Replacement of 400 W HPIT (metal halide) with 215 W LED Flood light for High Mast (2 nos.).	
53	HEEP Haridwar	Installation of 30 Nos. 36 W LED Panels in place of 2 X 36 W CFL False Ceiling Panels in GM (Engineering) Office, Main ADM Corridor.	6744
54		Installation of energy efficient LED Flood Light 45 W (80 Nos) in place of 75 W High Pressure Sodium Vapour(HPSV) Street Light in Street Lighting System.	11674
55		Installation of energy efficient LED Flood Light 150 W (100 Nos) in place of 400 W Metal Halide(MH) in Block-3.	169349
56		Retrofitting of Block-1 Planner M/c (Plan No: 1-1) by replacement of motor generator set with modern Digital DC drive system.	132616
57		Installation of energy efficient LED Flood Light 90 W (135Nos) in place of 275 W Metal Halide(MH) in Block-2.	218779
58		Installation of energy efficient LED Tube Light 22 W (7000 Nos) in place of 36 W CFL Tube Light Fitting in Offices & Corridors.	674419





Sr. No.	Unit	Project Title	Energy Saving (kWh)/Yr
59	FSIP Jagdishpur	Installation of APFC panel and improving the plant power factor from 0.81 to unity and improving overall power factor from 0.97 to unity.	37360
60		Minimizing the compressed air leakages and subsequent power loss.	51000
61		Installation of one large capacity screw air compressor with VFD in place of multiple small reciprocating compressors.	60000
62		Replacement of existing 250 W mercury vapour lamps with 100 W LED lamps.	91350
63		Replacement of existing 36 W FTL with 18 W LED lamps.	9331
64		Reducing the single phase lighting voltage from 250V to 215-220V.	26400
65		Improvement of Power Factor (P.F.) 0.99/ unity.	444763
66		Plugging of air leakages in the air network.	46983
67		Replacement of 400 W Metal Halide / Sodium Vapour lamp by 150 W of LED light.	53040
68		Use of 90 W LED flood type light.	139200
69		Use of 18 W LED tube in place of 36/40 W tube.	10303

Due to various energy efficiency / conservation projects during the reporting period, an estimated energy avoidance of more than 4.0 Million units of annual electricity usage is envisaged.

Further, due to renewable energy generation across our premises, 27.6 Million unit of electricity usage from the grid was avoided during the year 2018-19.





Green Energy Generation

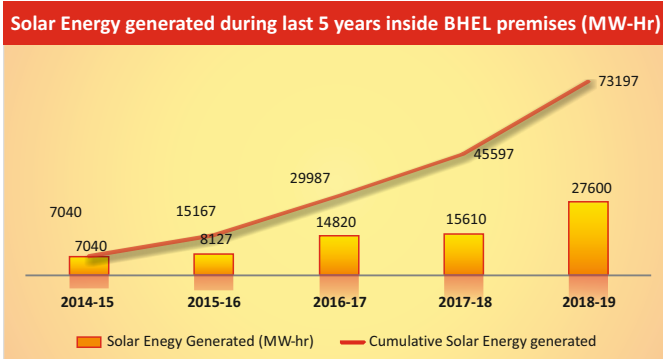
BHEL has established many solar power plants across its premises for its captive use. Presently, the installed capacity of ground based solar power plants is 27 MW_p. In addition, we have various solar rooftop installations as well which cater to local lighting requirements of that building. The share of renewable energy in our electricity consumption is going up, making our indirect energy consumption more sustainable.



In-house solar installation at Corporate R&D, BHEL Hyderabad

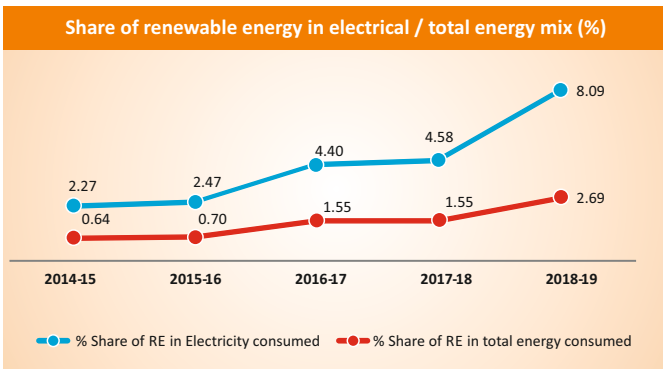
Total electricity generated through various renewable energy (RE) systems stood at 27.6 Million units as compared to 15.61 Million Units during 2017-18 which means that there is a 76.8% increase in the renewable energy generation during the year 2018-19 as compared to 2017-18. This has been achieved due to 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 Figure 1. It shows that the share of RE in the total energy mix is increasing every year and is now almost 2.69% as compared to just 0.64% during



(Figure 1)

2014-15. Similarly, the share of RE in our electrical energy use has increased to 8.09% during 2018-19 as compared to 2.27% during 2014-15. (Figure 2).



(Figure 2)



5 MW Solar Power Plant including ground mounted fixed, motor tracking and passive tracking enabled modules of BHEL make at Haridwar plant premises





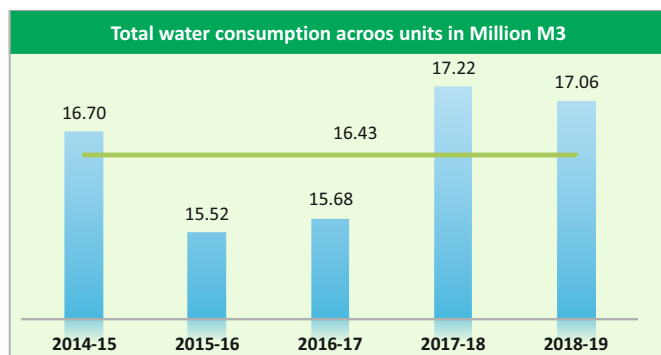
Managing Water

As an organization, we are well aware of the fact that water is a finite natural resource and is critical for our survival. The quantity and quality of water available for human consumption is declining due to climate change effect putting the large populace grappling with water stress. In view of this, BHEL as a responsible corporate citizen manages its water sustainably and makes all efforts to reduce its water footprint to the extent feasible.

Overall we have 12 Effluent Treatment Plants (ETPs) and 12 Sewage Treatment Plant (STPs) working in our units for treatment of trade effluent and sewage. BHEL is making every effort to conserve water and striving towards making its factories Zero Liquid Discharge (ZLD) entities so as to conserve water resources as well as reduce the pollution load of water bodies. Many of our factories viz. HEEP & CFFP Haridwar, HEPBhopal, HPEP Hyderabad, HPBP & SSTP Trichy, BAP Ranipet, CFP Rudrapur, IP Jagdishpur, and PPPU Thirumayam have been declared as Zero Liquid Discharge (ZLD) entities. At other places, work on establishment of STPs, ETPs and water recycling systems is in progress so as to eventually make the units ZLD. At HEEP Haridwar unit, a 7 Million Litre Per Day (MLD) capacity STP is under installation. At HEP Bhopal unit 2 sumps of cumulative capacity of 5200 Cubic Metre have been constructed for rain water harvesting. Water is being reused & recycled in various application like horticulture, industrial cooling, pisciculture, toilet flushing, kitchen vessel washing, construction work 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.

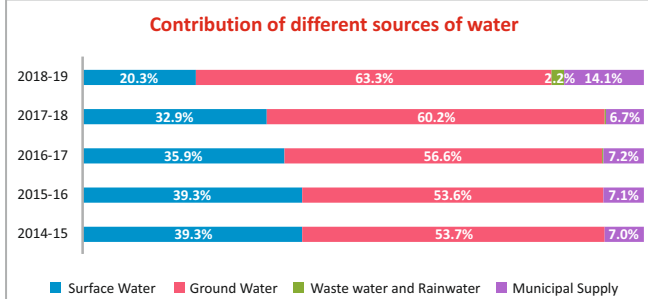
The data for water consumption is shown in Figure A below. As can be seen from the figure, the average water consumption during the last 5 years was 16.43 Million Cubic Metre. The contribution of different sources of water is also shown in the diagram at Figure B.



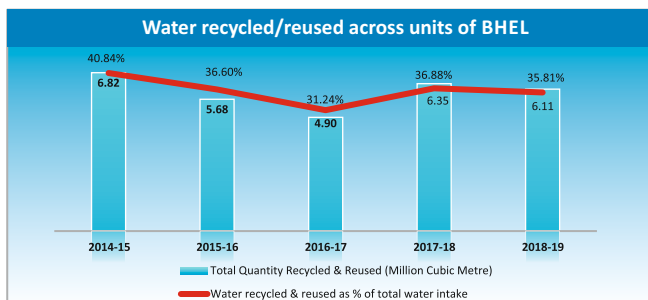
(Figure-A)

Automation of pumps for avoidance of overflow as a part of water conservation

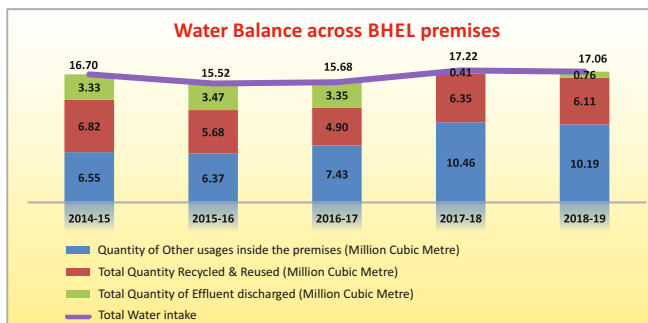
One of our units, is having huge consumption of water for which two dedicated Pump Stations are installed having 6 pumps in each stations employed with motors of capacities 150-180 HP. Before 2018-19, all these pumps were operated manually which used to result in overflowing of water. Sometimes these pumps would run for significant period which amounted to loss of power and water. In order to curtail the losses, all 12 pumps are automated for operations which has now checked the overflow conditions and running of pumps are rationalized.



(Figure B)



(Figure C)



(Figure D)





During the year 2018-19, only 7.6 Lakh Cubic Metre of water was discharged outside the premises of BHEL units which is nearly 4.45% of total water intake. The water balance diagram is also shown for the units.

Process modification for use of recycled water for mist quenching

Mist quenching is part of a process used for manufacturing of good quality rotor forgings which involves heat removal effected by the impingement of fresh water on hot metal surface. Mist quenching system used to intake drinking water sourced through tube wells. The quenching process for one rotor takes approximately 6 hours. So, the mist quenching system was using approximately 500 KL of drinking water for one rotor. The discharged hot water used to be drained out from plant causing wastage of natural resources.

After completion of zero discharge system, it was analyzed that recovered waste water from plant after filtration can be utilized in the process of mist quenching also. Therefore, mist quenching system was connected with recycled water of zero discharge system and all are put in close loop to avoid drainage of water.

Now, using recycled water and close loop operation, it helps in saving of 500KL ground water per quenching cycle.

Biodiversity in our premises

At our units, more than 21500 saplings were planted during tree plantations carried out over the year including on the occasion of World Environment Day (WED) 2018. Further, it is a standard practice to get saplings planted by retiring employees on the day of their superannuation to appreciate their contribution to the organization.

These saplings and existing inventory of trees has been acting as a carbon sink, mitigating the air pollution and helping in recharging of ground water as well.



Rose Garden in BHEL Bhopal Township

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 75 kg CFC-11 Equivalent was used across BHEL units as refrigerants. The new machines procured at various units are using refrigerant gases 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 171524 MT CO₂-equivalent. Further, contribution of emission from coal burning is reducing on annual basis.

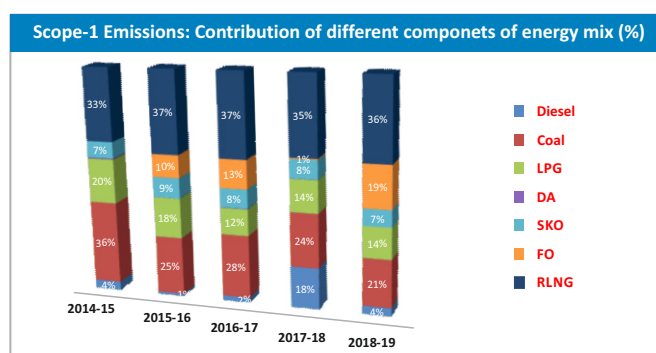
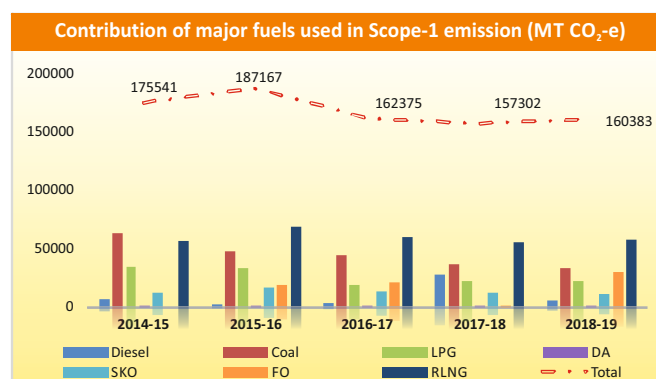
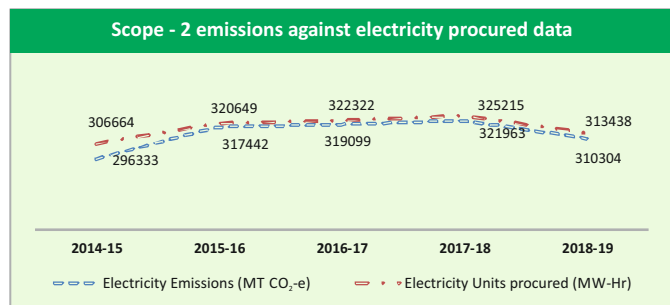
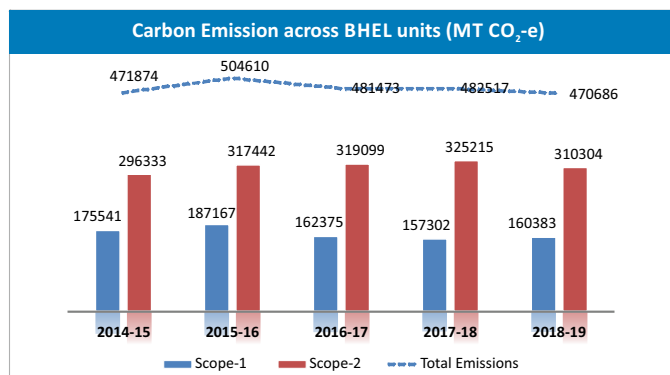




Figure A shown below depicts the indirect emissions (scope-2) due to energy consumption through purchase of electricity. Due to better availability of electricity, electricity consumption has increased in our units and correspondingly use of fuel such as diesel for electricity generation has reduced. Further, the combined data for Scope-1 and Scope-2 emission has been shown in Figure B. During the last 5 years, a total Carbon Emission of 2.41 Million Metric Tonnes of Carbon equivalent has happened across the units of BHEL.

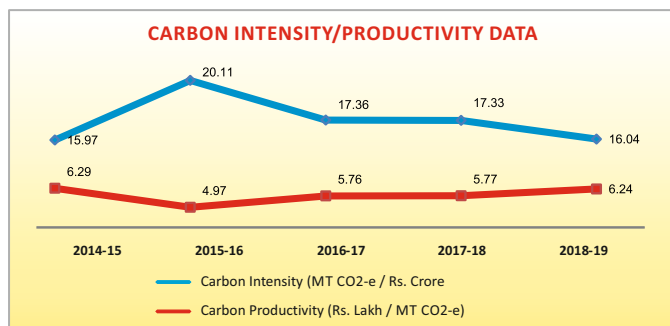


(Figure A)



(Figure B)

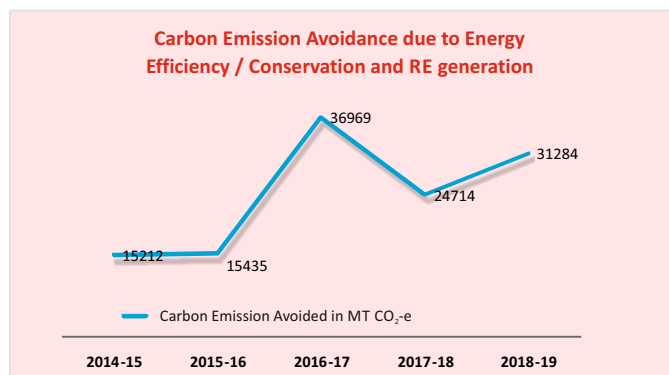
The data for Carbon Intensity (CI) [defined as Carbon Footprint expressed in MT CO₂-e emitted per Crores Rs. of Gross Turn over achieved] are shown in the (Figure C) below. The average CI figure stood at 17.36 and average CP figure stood at 5.80 meaning for every Crore Rs of Gross Turnover achieved, 17.36 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. 5.80 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.



(Figure C)

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 3960 MT CO₂-equivalent of carbon emission was avoided due to various energy efficiency measures taken. In addition, due to generation of renewable energy, further 27324 MT CO₂-equivalent of carbon emission was avoided due to renewable energy generated at our premises. A total of approx. 123614 MT of CO₂-e avoidance was achieved across our units in the last five years. There has been a decrease in quantum of 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 27 MW_p of Solar Power Plants installed for captive consumption across our units.



(Figure D)

Responsible waste management

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.

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





Waste Management initiatives:

Composting of organic waste at - HEEP Haridwar, IP Jagdishpur, HERP Varanasi and HPBP Trichy.
Providing different types of bins for storage of different types of scraps like iron, plastic, used oil, chemicals etc. at IP Jagdishpur and EDN Bengaluru.
Making different bins out of waste material in EDN Bengaluru.
Reuse of 300 drums as tree guards in HEP Bhopal.
Reuse of 1000 MT of Mild Steel and 47 MT Copper scrap in foundry of HEP Bhopal.
Construction debris used for inhouse civil works and landfilling at EDN Bengaluru.
Use of discarded insulators for making pavement / platform for stacking of material in IP Jagdishpur.
Reclamation of 67.5 KL of oil at HPBP Trichy.
Reduction of use of single use plastic across the factories and townships.
Recycling of 32.4 KL of coolant and 1574 MT of sand in the process at HEP Bhopal.

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.

Hazardous and Non-Hazardous Wastes generated at units

Type of wastes	Unit	Quantity (2014-15)	Quantity (2015-16)	Quantity (2016-17)	Quantity (2017-18)	Quantity (2018-19)	Disposal method
Non - Hazardous	MT	57385.1	33933	36945	36261	51548	Sold to the authorised users/ disposal facility/ reused
Hazardous	MT	6185.0	5309.8	4724	3312	1692	

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.

Waste Reused / Recycled at Units

Type of wastes	Unit	Quantity (2014-15)	Quantity (2015-16)	Quantity (2016-17)	Quantity (2017-18)	Quantity (2018-19)	Remarks
Non - hazardous	MT	9708	33591	36028	36261	51548	Includes ferrous as well as non ferrous materials
Hazardous	MT	92	1059	2601	1194	1170	Used oil and other materials reused inside or sold to authorised recyclers

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

- **Advance Ultra Supercritical Technology (AUSC):** In parallel to the improvements made in carbon footprint of BHEL's operation, company is also working towards reducing the carbon footprint of BHEL made products during its running lifecycle. BHEL in



CFFP Haridwar has proven its technical prowess for supply of Inconel castings for AUSC applications

association with IGCAR, NTPC, is developing Advanced Ultra Supercritical Technology under the aegis of the National Mission on Clean Coal Technology. The technology will yield targeted efficiency of 46% against efficiency of ~38% of subcritical and ~41-42% of supercritical sets. In result, this will further reduce coal consumption and CO₂ emission by about 11% as compared to Super Critical plants and by about 20% as compared to Subcritical





power plants for single unit of power generation. Company has already introduced Super Critical Technology in India which has lower carbon footprint in comparison to previous generation of subcritical technology.

- **Emission Control Equipment:** New emission norms which have come into force for generation utilities, BHEL is ready with the solutions required to meet the stipulated norms. The company has initiated several measures such as modification in boiler design, modifications in the wind box firing system of Boilers and development of SCR catalyst and systems for NOx reduction, installation of FGD systems for SOx capture and improvement in particulate collection efficiency of ESP. BHEL has developed SCR 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 Super Thermal Power Station.
- **Renewable Energy:** BHEL is contributing significantly to the nation's green initiatives of promoting renewable energy by manufacturing state-of-the-art solar cells and solar modules. In addition, space grade solar panels using high efficiency cells and space-grade battery are also being manufactured. BHEL has also in-house developed PV products ranging from Solar Inverters, Solar Passive Trackers, Solar PV cells and PV modules.
- **Solar cells:** BHEL has undertaken development of high efficiency solar cells using Passivated Emitter Rear Contact (PERC) technology at pilot scale. The project includes development of mono and multicrystalline silicon (multi-Si) Solar cells with efficiencies of 21% and 19 % respectively and shall be commercially deployed for production of higher efficiency Solar cells/modules.
- **E-mobility:** Electric mobility is fast emerging as a future mode of transportation to reduce emission from vehicles. BHEL through in-house R&D efforts has developed & successfully tested at ARAI, Motors, Controllers & Charging infrastructure for E-Bus application. BHEL is manufacturing 12 m, 7 m busses for E-mobility business.



Fuel cell powered 1.25 kW hybrid electric golf cart vehicle developed by BHEL

- **Fuel cell:** BHEL is also working on development of environment friendly green technology for power generation and has successfully developed 5 kW PEM (Proton Exchange Membrane)

fuel cell stack for strategic applications and further working to increase the capacity. BHEL has also developed and demonstrated Proton-exchange membrane (PEM) Fuel cell powered 1.25 kW Hybrid Electric Golf cart vehicle for drive range extension of electric vehicles.

- **Air cooled condenser:** BHEL is offering environment friendly technology of Air cooled condenser to ensure water saving in modern thermal power plants. Further in-house development has been undertaken to make it more competitive.

Management of Significant Spills

Our units are certified to Environmental Management System accredited to ISO 14001:2015. This management 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 / ISO 45001, undergone periodic external 3rd party audit 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 & OHSAS 18001/ISO 45001 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 2018-19, an expenditure of Rs. 782 Lakhs 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, the various Labour Laws, etc. Special provisions have been made in BHEL to safeguard women employees at the workplace. Internal Complaint Committee (ICC) has also been formed to look into cases of Sexual Harassment at workplace for female employees. The Principles of Natural Justice are scrupulously followed in - "The BHEL Conduct, Discipline and Appeal Rules" applicable to all its executives and supervisors, and "Standing Orders" applicable to all workers.

The Company neither subscribes to nor indulges in such coercive practices. Towards this, it never asks its employees to deposit their original documents pertaining to their education qualifications or Date of Birth.

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.

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 employment relationship, career growth/ 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

Total number of regular employee as on 31-03-2019 stood at 35,471. Number of permanent women employees as on 31-03-2019 was 2,053 which is nearly 5.8% of its total manpower strength. Number of permanent employees with disabilities as on 31-03-2019 stood at 905. The overall representation of SC/ST/OBC employees in total manpower as on 31/12/2018 was 20.47%, 7.05% and 33.15% for SCs, STs and OBCs respectively. The percentages in direct recruitment during the year 2017 were 10.99%, 5.50% and 20.88% for SCs, STs and OBCs respectively.

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. Further details about human resources is already provided in the section Human Resource in this report.

Performance and career development

People Capability Maturity Model (PCMM) Assessment was carried out in the organization through QAI India Ltd. Who certified that BHEL has broadly implemented the P-CMM level 2 process areas up to the desired level, with a few improvement areas.

To meet the career development aspirations of young executives and to build a systematic pipeline of high potential executives to feed into the succession planning scheme for key positions, High Potential (HiPo) Employees Scheme is in place for identifying and grooming suitable candidates. Under the HiPo scheme, 1210 mid-level executives have been identified. Grooming process for such executives as envisaged in the scheme is underway in all the Units, with an online platform to track the grooming process also in place.

With a view to encourage and motivate employees to attain higher level of excellence and to contribute towards growth and development of the organization and to provide thrust to BHEL's initiatives towards enhancing engagement levels of employees, an Employee Recognition Scheme was also launched in the organization.

Behavioural competencies of around 1000 executives have been assessed through SHL psychometric tool. The inputs from this exercise has helped in preparing individual development plan and is being used to identify High Potential Employees and potential successors. To continuously evolve our well established performance management system, a Performance Improvement Plan has been launched in BHEL for employee development and ensuring a high performance culture. In order to simplify the process of performance evaluation, the number of competencies being evaluated has been rationalized.

Core programmes like Young Managers Programme, General Management Programme, Strategic Management Programme, Advanced Management Programme, various technical and function specific programmes on quality, material management, etc. and behavioural programmes ensure commitment towards talent management process.

Labour / Management relations

The Government of India has enacted various labour laws to adequately protect the interests of the working class. These laws are strictly followed in BHEL. Further, all BHEL units/divisions are required to submit quarterly reports on compliances of different applicable laws to the Board of Directors, so as to ensure that the interests of the workers are protected.

Apart from this, BHEL has various bi-partite fora for workers, wherein the issues / problems pertaining to the workers are being discussed and settled. Towards this end, BHEL has an apex level bipartite forum namely "The Joint Committee for BHEL" wherein the elected





representatives of all units of BHEL, along with the Central Trade Union Organizations, to which the Unions are affiliated, are represented from the workers' side whereas the Management is represented by Chairman & Managing Director and Functional Directors along with the Heads of Units.

Continuing its thrust on taking the participative culture to higher echelon, there are Plant Council & Shop Council(s) operating at the unit level, which meet regularly and discuss issues related to Production in Financial and Physical terms, Productivity, Order Book, Cash Collection, Despatch, General Administration and Discipline etc. The Plant Council as well as the Shop Councils have representation from representative unions besides Supervisory & Executive Associations.

Suggestions on Cost Reduction, Meeting the Production Targets, Sequential Deliveries and Quality of Goods, are accepted which are evaluated for implementation. The involvement of all the cadres in the workshop has had a positive impact on the working of the Unit. In addition, at the Unit level, workshops are being organized wherein the themes of the workshop are generally related to the Unit specific issues. Such workshops have not only resulted in better organizational climate but have also brought together different categories of employees in resolving various issues.

Occupational Health & Safety

Occupational Health, Safety and Environment is a focus area for BHEL Management. Utmost importance is given to ensure a safe working environment and to inculcate safety awareness among employees and stakeholders. Ensuring workplace safety is a material issue for matter of concern for our organization.

BHEL has a multi-tier structure for managing occupational health, safety and environment by way of organizational set-ups at the corporate, sector, unit, division, project site levels. HSE related issues are reviewed in various forums such as risk management committee, joint committee, plant level apex committee, central safety committee, shop councils etc.

At BHEL units and sites, integrated HSE Management system certified to HSE standards has been established, which has attained a high level of maturity. An established system of conducting internal audits by trained internal auditors as well as third party auditors is there. Height permit and height work check list are implemented to ensure safety of workers while working at heights. Adequate numbers of qualified safety officers are posted at all units/sites as per statutory rules and provisions to look after safety of men and materials.

For strict compliance & enforcement of safety norms and practices by our sub-contractors, "HSE plan of site operations by sub-contractors" has been established and is made a part of contracts. For enhancing and sustaining HSE awareness amongst employees and stakeholders, awareness campaigns on fire safety, road safety, general safety, health, environment, and chemical safety were held.

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

Safety Statistics for BHEL Units					
Year	Total Reportable accidents	Total Man-days Lost	Man Hours worked	Frequency Rate	Severity Rate
2014-15	68	7738	153423765	0.44	50.44
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

All townships of BHEL units eschew use of single use plastic. More than 21500 saplings have been planted in township, factory and surrounding areas during the reporting period. Campaigns such as "Swachhata Pakhwada" were observed from 16.08.2018 to 31.08.2018 and Swachhata Hi Seva from 15.09.2018 to 02.10.2018 to inculcate the culture of cleanliness and good hygiene in BHEL. A total of 9.63 Lakh man hours were contributed by BHEL employees in such efforts.



Cleanliness drive undertaken at Corporate Office, New Delhi, under Swachh Bharat Abhiyan

As a recognition of good safety practices and performance, BHEL has been conferred with many awards in safety, including 6 National Safety Awards (Trichy unit), Safety Innovation Award 2018 etc. Further, our EDN Bengaluru unit's team of artisans won the state level safety quiz for the seventh consecutive year.

Learning and Development

Aligned to the changing needs of the organization, knowledge transfer, skill development and behavioural interventions were facilitated for BHEL employees. During the year, an average of 3.58





Training Man Days per employee was achieved across the organization.

Seven Advanced Management Programs in collaboration with IIM-Calcutta were conducted for 217 executives at senior management level. There was thrust on technical programs which were organized for existing business areas as well as for emerging areas. There is a strong focus on eLearning in the Organization. BHEL has been developing e-Learning modules meeting business requirements and has a full-fledged integrated in house e-learning platform UNNAYAN that caters to a wide variety of training courses following the model of content creation through crowd sourcing.

As part of behavioural/managerial initiatives, redesigned core programs have been conducted followed by impact analysis to measure the effectiveness of these programs for the first time. Programs like "Leader as Coach", "Influencing through Assertiveness" & "Winning Together for supervisors" have been facilitated in the organization. Workshops were also conducted to initiate collaborative thinking and creative approach.



More than 6,000 ITI apprentices of different trades trained under skill development initiatives at various BHEL units

Knowledge sharing sessions were conducted for superannuating senior executives across the company. Orientation programs for successful on-boarding of newly recruited medical doctors & law officers were also held. BHEL was also actively involved in skill development initiatives of the Government of India and about 20,000 non-BHEL individuals were imparted training under various schemes like National Apprenticeship Promotion Scheme (NAPS) and National Apprenticeship Training Scheme (NATS) of apprenticeship & industrial visits.

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. Three representations received from suppliers during 2018-19 under Integrity Pact have been resolved by the IEMs. Standard Operating Procedure for adoption of Integrity Pact was reviewed as per the advice of CVC and revised procedure notified on July 16, 2018.

Protecting human rights

BHEL policies are in line with the principles of Human Rights, The Constitution of India, and various applicable laws. BHEL has special provisions for ensuring safeguard of women employees at the workplace.

BHEL has been supporting Micro, Small & Medium Enterprises (MSMEs) and local suppliers in and around manufacturing units from various fronts as a part of its supply chain. Also, as mandated in Public Procurement Policy for MSMEs Amendment Order, 2018 for MSMEs (issued by Ministry of MSME-Gol), 25% of BHEL's total procurement was from MSEs during 2018-19. Regular vendor meets and supplier development programs are organized by BHEL units, specifically for MSMEs (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.

BHEL is a founder 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/419416> One instance of Human Rights abuse was referred to BHEL by National Human Rights Commission (NHRC) during 2018-19. The matter has been examined and suitably addressed. No further directive on the aforesaid reported case has been received from NHRC.

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 M/s Karvy Computershare Private Limited (Registrar & Share Transfer Agent of the company), 1094 complaints were received from the shareholders during the year under review and all complaints were redressed by 31st March, 2019.

BHEL's Human Resource Management 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.

A total of 243 public grievance complaints were received from the general public under the Centralized Public Grievance Redressal and Monitoring Scheme during the year 2018-19. 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 for CPSEs.

http://www.bhel.com/index.php/csr_policy

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 and is fully in conformance with requirements of Section 135 of the Companies Act 2013.



Bio-digester toilets on the banks of river Ganga near Haridwar & Rishikesh, installed by BHEL

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 the year BHEL was conferred with following CSR awards:

1. "CSR TIMES Awards-2018" in the category "Livelihood".
2. "PSE Excellence Awards -2017" for CSR & Sustainability by Indian Chamber of Commerce.
3. "SKOCH Order of Merit Award" for our CSR intervention in Khargone District, MP.
4. Hemophillia Federation (India) felicitated BHEL twice during the year.

During 2018-19, the CSR activities carried out are listed in Annexure IV of Annual Report. Further, project details are listed on the link <http://www.bhel.com/index.php/projects>

Major CSR initiatives undertaken

BHEL has identified seven thrust areas for CSR interventions. Brief description of some key interventions in these thrust areas are given below.

Clean India

- BHEL provided 3 five seater Mobile Toilets Vans to Satna Nagar Nigam (MP).
- BHEL approved financial support for construction of toilets in five primary schools located in the Gram Panchayat Chaurawan, Block-Siyar in Ballia district (UP).
- BHEL continued its program for constructing 25 Bio-digester toilets in Haridwar & Rishikesh. Out of these 18 clusters have been completed and made operational for public.



The then CMD, BHEL inaugurating a modern Public Utility Complex for general public in Sec 17, Noida

Educated India

- BHEL supported Latika Roy Memorial Foundation, a Dehradun based NGO for its program "LATIKA VIHAR- EVERYBODY'S WELCOME". It is a unique program for holistic development and inclusion of children and young adults with intellectual impairment.





- BHEL has approved a CSR project for constructing a midday meal shed in Upper Primary School, Kunda Basti, Jhalana Mahal, Jhalan, Jaipur.
- BHEL has taken up a project for constructing compound wall for Girraj Govt. Degree College, Nizamabad, Telangana. It will help in developing a safe and secure environment in the college, particularly for the girls' hostels.
- BHEL has taken up a CSR project for constructing Boys & Girls Hostel Buildings at Govt. Polytechnic, Nizamabad, Telangana. This will bring great relief to poor students needing hostel accommodation during their course in the Polytechnic.
- BHEL provided financial support to orphans, wards of widows & differently abled students through educational scholarships at Bhopal.



Major BHEL units have facilities to provide computer education to the economically weaker sections

- BHEL provided Computer Lab in three Govt. High School in Bengaluru, Karnataka.
- BHEL manufacturing units and other divisions under took many other CSR initiatives aimed at promotion of education such as renovation of class rooms, construction of sheds, supply of furniture, distribution of books, construction of toilets, providing IT infrastructure, improving water supply, providing play items, providing RO, renovation of auditorium etc. in various schools in vicinity of BHEL's establishments at Haridwar, Bhopal, Hyderabad, Chennai, Jhansi, Goindwal, Jagdishpur, Delhi-NCR, Kolkata and Trichy.

Healthy India

- BHEL has extended the services of Mobile Medical Units being run in Raigad district, Maharashtra for one more year and has started a similar service for rural areas of Ratnagiri districts, Maharashtra for a period of one year.
- A unique CSR project for retraining and capacity building of ASHA workers of Kalyan Block, Thane District, Maharashtra was taken up through "Rambhau Mhalgi Prabodhini", Mumbai.
- Free Medical Camps and Yoga Classes were organised in villages in



Day care facilities for wards of BHEL employees of Delhi NCR at BHEL township premises in Noida

vicinity of BHEL's establishments at Bhopal, Haridwar, Nagpur and Surat.

Responsible India, Inclusive India & Disaster Relief

- BHEL has approved a CSR project for installing Low Tension (LT) electrical lines and LED street lights at the confluence of Alaknanda and Mandakini rivers at Rudraprayag, Uttarkhand.
- A unique CSR initiative named "Connect & Change Program", for developing change makers through Entrepreneurship & Ideation for Inclusive Growth & Societal Development, has been taken up in Palghar, Rajgarh, Thane & Mumbai districts of Maharashtra



Livelihood initiatives & skill development programmes, empowering women, supported by BHEL at its manufacturing units

- BHEL Bhopal unit undertook a CSR initiative to provide free tuition to EWS Tribal Children.
- BHEL Haridwar unit continued its program for skill development of EWS women in various trades like beautician, tailoring, music, English speaking etc.
- BHEL RC Puram, Hyderabad supported needy Divyangjan by providing tricycles and wheelchairs for children, wheelchairs for adults, elbow crutches, axillary crutches, walking sticks, Braille canes, MSIED Kits, BTE Digital Hearing Aids and other items.





A cheque of ₹ 5.24 Cr. was handed over to Sh. Pinarayi Vijayan, Hon'ble Chief Minister of Kerala by BHEL as a contribution to the Chief Minister's distress relief fund of Kerala

- BHEL's R&D unit at Hyderabad provided financial support to AARAMBH – Association for autism effected children, Ashray-Akruti – Centre for the hearing impaired & Sri Vidhya Centre for Special Children at Hyderabad.



BHEL's CSR initiatives spreading smiles

Compliance

Customer value is an integral part of BHEL's culture which is also being 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/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 are in operation. In 2018-19, major quality issues reported were taken up for Root Cause Analysis (RCA) and fourteen cases were resolved.

Apart from complaints, customer feedback is taken through customer satisfaction surveys, customers' meets, face-to-face interactions and appreciation letters.

There is no case filed by any stakeholder against the company regarding unfair trade practices, irresponsible advertising and/or anti-competitive behaviour during the last five years and pending as on end of financial year i.e. 31-03-2019.



State-of-the-art turbine blade shop at BHEL Hyderabad unit

Research & Development and Technological Achievements

In today's competitive business environment, it is important to offer new products & systems with latest technological features. BHEL is aligning its R&D framework and business strategy to provide reliable products which are not only cost-competitive but also have an edge in efficiency and performance. In-house Research and Development is extremely important for self-sustenance and growth in today's challenging environment.

The company has a strong engineering and R&D base for in-house development of indigenous technologies to address the market requirements. BHEL has entered into technology collaboration agreement with leading global manufacturing and engineering companies.

The company has successfully indigenized these technologies to meet the requirements of Indian customers and establish manufacturing facilities at its own works. Today, with sixteen ongoing collaborations, BHEL is focusing on successful adaptation and timely assimilation of these technologies.

- R&D Expenditure consistently >2.5% of turnover-highest in Indian engineering field
- 6 technology collaboration agreements signed in last two years
- Five research institutes, 14 Centres of Excellence
- In-house R&D Centres of 12 manufacturing units & divisions recognized by Department for Scientific & Industrial Research (DSIR)





Greening the Black Diamond

BHEL, along with NTPC and IGCAR is developing Advanced Ultra Supercritical (AUSC) technology - a pioneering effort of national importance for high efficiency coal-fired power plants with reduced emissions.

Entrusted with the task of designing and manufacturing the power cycle equipment, BHEL has achieved significant milestones with engineering of the project (Phase-1) nearing completion, including the design of major equipment. For Phase-2, 1x800 MW Technology Demonstration Plant is planned to be setup at NTPC Sipat.

Amongst many others, one of the unique achievements in this journey is the successful pouring of casting of approx. 50T for alloy 625, world's heaviest casting poured for any application.

BHEL's Innovation strategy, R&D structure and infrastructure is geared up to meet the technological challenges of present and future business requirements. The R&D expenditure of the Company for 2018-19 was Rs. 820 Crore which is approx. 2.8% of the turnover. This includes expenditure incurred on R&D efforts made at manufacturing units for major modifications/ improvements in products/ designs/ against customer requirements apart from R&D projects. The Company filed 558 patent and copyright applications during the year, enhancing the Company's intellectual capital to 4561. Approx. 19.6 %

of the Company's turnover, amounting to Rs. 5761 Crore has been achieved from its in-house developed products. Further details about our R&D achievement has been provided in page 142-147 of Annual Report 2018-19.

Detailed Product Labels/ Name Plates/ Test Certificates are provided to customers as per their requirement and terms of the contracts with them. There has not been any incident of non-compliance with regulations and voluntary codes concerning product and service information and health & safety impacts of products and services.

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 statutes 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.





GRI CONTENT INDEX FOR 'IN ACCORDANCE' – COMPREHENSIVE

GENERAL STANDARD DISCLOSURES				
Indicator	Description	Page No. / explanation	Omissions	External Assurance
STRATEGY AND ANALYSIS				
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 18-19 Page 33-35		
ORGANISATIONAL PROFILE				
G4-3	Name of the organisation	7		
G4-4	Primary brands, products, and services	BHEL's Annual Report 18-19 Page 331-340		
G4-5	Location of organisation’s Headquarters	7		
G4-6	Number of countries where the organisation operates	7		
G4-7	Nature of ownership and legal form	9		
G4-8	Markets served	7		
G4-9	Scale of the organisation	7		
G4-10	Details of workforce broken down by gender, employment contract, employment type etc.	29		
G4-11	Percentage of total employees covered by collective bargaining agreements	29-30		
G4-12	Description of the organisation’s supply chain	8		
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	18		
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 18-19 Page 140		
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			
IDENTIFIED MATERIAL ASPECTS AND BOUNDARIES				
G4-17	Entities included in the organisation’s consolidated financial statements with indication of coverage in the report	14		
G4-18	Process for defining the report content and the Aspect Boundaries	14		





Indicator	Description	Page No. / explanation	Omissions	External Assurance
G4-19	Material Aspects identified in the process for defining report content	14		
G4-20	Description of Aspect Boundary within the organisation for each material aspect	14		
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 Applicable		
G4-23	Significant changes from previous reporting periods in the Scope and Aspect Boundaries			
STAKEHOLDER ENGAGEMENT				
G4-24	List of stakeholder groups engaged by the organisation	12-14		
G4-25	Basis for identification and selection of stakeholders with whom to engage			
G4-26	Organisation’s approach to stakeholder engagement			
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			
REPORT PROFILE				
G4-28	Reporting Period	14		
G4-29	Date of most recent previous Report	14		
G4-30	Reporting cycle	14		
G4-31	Contact point for questions regarding the report or its contents	14		
G4-32	GRI Content Index	36-45		
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	10		
G4-35	Process for delegating authority for economic, environmental and social topics from the highest governance body to senior executives and other employees	10-11		
G4-36	Executive - level positions with responsibility for economic, environmental and social topics	11		
G4-37	Processes for consultation between stakeholders and the highest governance body on economic, environmental and social topics	11-12		
G4-38	Composition of the highest governance body and its committees	BHEL's Annual Report 18-19 Page 82-91		





Indicator	Description	Page No. / explanation	Omissions	External Assurance
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	10-11		
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	BHEL's Annual Report 18-19 Page 82-91		
G4-41	Processes for the highest governance body to ensure conflicts of interest are avoided and managed; disclosure of conflicts of interest to stakeholders	10-11		
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	BHEL's Annual Report 18-19 Page 82-91		
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			
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			
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	BHEL's Annual Report 18-19 Page 84-86		





Indicator	Description	Page No. / explanation	Omissions	External Assurance
G4-52	Process for determining remuneration	BHEL's Annual Report 18-19 Page 84-86		
G4-53	How stakeholders’ views are sought and taken into account regarding remuneration			
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				
G4-56	Organisation’s values, principles, standards and norms of behavior such as codes of conduct and codes of ethics	8-9		
G4-57	Internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organisational integrity			
G4-58	Internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organisational integrity			

SPECIFIC STANDARD DISCLOSURES - Material Aspects				
Indicator	Description	Page number / explanation	Omissions	External Assurance
CATEGORY: ECONOMIC				
ECONOMIC PERFORMANCE				
G4-EC1	Direct economic value generated and distributed	BHEL's Annual Report 18-19 Page 12-13		
G4-EC2	Financial implications and other risks and opportunities for the organisation's activities due to climate change	BHEL's Annual Report 18-19 Page 33-15		
G4-EC3	Coverage of the organisation's defined benefit plan obligations	BHEL's Annual Report 18-19 Page 210-221		
G4-EC4	Financial assistance received from government	BHEL's Annual Report 18-19 Page 279		
MARKET PRESENCE				
G4-EC5	Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation	Not applicable		
G4-EC6	Proportion of senior management hired from the local community at significant locations of operation			
INDIRECT ECONOMIC IMPACTS				
G4-EC7	Development and impact of infrastructure investments and services supported	BHEL's Annual Report 18-19 Page 40-41		
G4-EC8	Significant indirect economic impacts, including the extent of impacts			





Indicator	Description	Page number / explanation	Omissions	External Assurance
PROCUREMENT PRACTICES				
G4-EC9	Proportion of spending on local suppliers at significant locations of operation	BHEL's Annual Report 18-19 Page 137		
CATEGORY: ENVIRONMENTAL				
MATERIALS				
G4-EN1	Materials used by weight or volume	15-16		
G4-EN2	Percentage of materials used that are recycled input materials			
ENERGY				
G4-EN3	Energy consumption within the organisation	16-17		
G4-EN4	Energy consumption outside of the organisation		Not reported	
G4-EN5	Energy intensity	18		
G4-EN6	Reduction of energy consumption	19-22		
G4-EN7	Reductions in energy requirements of products and services	22		
WATER				
G4-EN8	Total water withdrawal by source	24		
G4-EN9	Water sources significantly affected by withdrawal of water	None		
G4-EN10	Percentage and total volume of water recycled and reused	24-25		
BIODIVERSITY				
G4-DMA	Aspect specific DMA	25		
G4-EN11	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, managed in, or are adjacent to, protected areas and areas of high biodiversity value, therefore, these standard disclosures are not applicable.	
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			
G4-EN13	Habitats Protected or Restored			
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			
EMISSIONS				
G4-EN15	Direct greenhouse gas (GHG) emissions (scope 1)	25		
G4-EN16	Energy indirect greenhouse gas (GHG) emissions (scope 2)	26		
G4-EN17	Other indirect greenhouse gas (GHG) emissions (scope 3)	26		





Indicator	Description	Page number / explanation	Omissions	External Assurance
G4-EN18	Greenhouse gas (GHG) emissions intensity	26		
G4-EN19	Reduction of greenhouse gas (GHG) emissions	26		
G4-EN20	Emissions of ozone-depleting substances (ODS)	25		
G4-EN21	NOx, SOx, and other significant air emissions	25		
EFFLUENTS AND WASTE				
G4-EN22	Total water discharge by quality and destination	24		
G4-EN23	Total weight of waste by type and disposal method	26-27		
G4-EN24	Total number and volume of significant spills	28		
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		
PRODUCTS & SERVICES				
G4-EN27`	Extent of impact mitigation of environmental impacts of products and services	27-28		
G4-EN28	Percentage of products sold and their packaging materials that are reclaimed by category			
COMPLIANCE				
G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.	28		
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	28		
SUPPLIER ENVIRONMENTAL ASSESSMENT				
G4-EN32	Percentage of new suppliers that were screened using environmental criteria		Not reported	
G4-EN33	Significant actual and potential negative environmental impacts in the supply chain and actions taken			





Indicator	Description	Page number / explanation	Omissions	External Assurance
ENVIRONMENTAL GRIEVANCE MECHANISM				
G4-EN34	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms	28		
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 18-19 Page 73-74		
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 18-19 Page 258-259		
G4-LA3	Return to work and retention rates after parental leave, by gender		Not applicable	
LABOR/MANAGEMENT RELATIONS				
G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements		Not applicable	
OCCUPATIONAL HEALTH AND 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	29-30		
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	30		
G4-LA7	Workers with high incidence or high risk of diseases related to their occupation	29-30		
G4-LA8	Health and safety topics covered in formal agreements with trade unions	29-30		
TRAINING AND EDUCATION				
G4-LA9	Average hours of training per year per employee by gender, and by employee category	30-31		
G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	30-31		
G4-LA11	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category	29		
DIVERSITY AND EQUAL OPPORTUNITY				
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	11		



Indicator	Description	Page number / explanation	Omissions	External Assurance
EQUAL REMUNERATION FOR WOMEN 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 LABOR PRACTICES				
G4-LA14	Percentage of new suppliers that were screened using labor practices criteria	31		
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	31		
HUMAN RIGHTS				
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	31		
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	31		
G4-HR3	Total number of incidents of discrimination and corrective actions taken	31		
FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING				
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 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	29		
INDIGINEOUS RIGHTS				
G4-HR8	Total number of incidents of violations involving rights of indigenous peoples and actions taken	Not applicable		



Indicator	Description	Page number / explanation	Omissions	External Assurance
ASSESSMENT				
G4-HR9	Total number and percentage of operations that have been subject to human rights reviews or impact assessments	31		
SUPPLIER HUMAN RIGHTS ASSESSMENT				
G4-HR10	Percentage of new suppliers that were screened using human rights criteria		Not reported	
G4-HR11	Significant actual and potential negative human rights impacts in the supply chain and actions taken			
HUMAN RIGHTS GRIEVANCE MECHANISMS				
G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms	31		
SOCIETY				
LOCAL COMMUNITIES				
G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	31		
G4-SO2	Operations with significant actual and potential negative impacts on local communities	31		
ANTI CORRUPTION				
G4-SO3	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified	BHEL's Annual Report 18-19 Page 29-30		
G4-SO4	Communication and training on anti-corruption policies and procedures			
G4-SO5	Confirmed incidents of corruption and actions taken			
PUBLIC POLICY				
G4-SO6	Total value of political contributions by country and recipient/beneficiary	Not applicable		
ANTI COMPETITIVE BEHAVIOUR				
G4-SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes	34		
COMPLIANCE				
G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	34		
SUPPLIER ASSESSMENT FOR IMPACTS ON SOCIETY				
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			
GRIEVANCE MECHANISMS FOR IMPACTS ON SOCIETY				
G4-SO11	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms	34		





Indicator	Description	Page number / explanation	Omissions	External Assurance
PRODUCT RESPONSIBILITY				
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	34		
PRODUCT & SERVICE LABELING				
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	34		
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	34		
G4-PR5	Results of surveys measuring customer satisfaction		Not reported	
MARKETING COMMUNICATIONS				
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	35		
CUSTOMER PRIVACY				
G4-PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data	34		
COMPLIANCE				
G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	34		





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