

डी. बन्द्योपाध्याय

निदेशक (मानव संसाधन) एवं

अध्यक्ष एवं प्रबंध निदेशक (अतिरिक्त प्रभार)

D. Bandyopadhyay

Director (Human Resources) &

Chairman & Managing Director (Addl. Charge)

भारत हेवी इलेक्ट्रिकल्स लिमिटेड

Bharat Heavy Electricals Limited



BHEL's Commitment In Support of U.N.G.C. Programme

Established in 1964, Bharat Heavy Electricals Limited (BHEL) is the largest engineering and manufacturing enterprise in India in the energy and infrastructure sector with the capability to manufacture the entire range of power plant equipment. BHEL caters to the core sectors like Power Generation, Transmission, Industry, Transportation, Renewable Energy, Oil & Gas, Defence & Aerospace, and e-Mobility & Energy Storage Solutions, and has references in 83 countries across the globe. The mammoth size of operations is evident from its widespread network of 16 manufacturing units, 2 repair units, 4 regional offices, 8 service centers, 1 subsidiary, 3 overseas offices, 3 active joint ventures, 15 regional marketing centers and more than 150 project sites across India and abroad.

BHEL's experience of over five decades of installing more than 1,85,000 MW utility sets in India and abroad, backed by its strong engineering credentials, has spurred various utilities to repose confidence in the company's capabilities to make their power plants compliant with the revised emission norms and reduce their environmental footprint. BHEL's plan to indigenously manufacture major equipment for emission control provides a twin boost to the Government's plan of 'Making in India' and its Intended National Determined Contributions (INDC) for limiting the carbon footprint of the nation.


BHEL has been contributing significantly to the nation's green initiatives for developing and promoting renewable energy over the past three decades. The enhancement of its state-of-the-art manufacturing lines of solar cells and solar modules has further strengthened its presence in the SPV segment. In addition, space-grade solar panels using high efficiency cells and space-grade battery are being manufactured at its Electronics Systems Division, Bengaluru.

Environmental Management System (EMS) established at our manufacturing units & power sector regions and certified to ISO 14001 has been a part of our overall management systems since long, providing enabling framework to embed precautionary approach to environment in our day to day operations. This EMS is guided by our HSE policy which has been revised during 2018-19.

BHEL has continued to play a prominent role in the United Nation's Global Compact (UNGC) Programme and ingrained the core values on human rights, labour standards, environment and anti-corruption in its organizational culture and strategy. BHEL stands committed to advance these principles within its sphere of influence. The company publically advocates UNGC principles to its Stakeholders through Annual Report, Press Conferences and other public communiqués.

BHEL's performance on each principle of Global Compact for the year 2018-19 is hosted on UNGC website and also available on company's website www.bhel.com.

Date: 3rd July, 2019


(D Bandyopadhyay)

BHEL Performance 2018-19 – Global Compact Principles

Human Rights

Principle 1): Business should support and respect the protection of internationally proclaimed human rights

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.

Principle 2): Make sure they are not complicit in Human Rights abuse

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.

Labour Standards

Principle 3): Businesses should uphold the freedom of association and the effective recognition of right to collective bargaining

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, where the issues / problems pertaining to the workers are 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.

Principle 4): The Elimination of all forms of forced and compulsory labour

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.

Principle 5): The Effective Abolition of Child Labour

As per BHEL's Recruitment Policy, the minimum age for employment in the Company is 18 years. It is not permissible to employ any person below this age in BHEL. As such, child labour is not employed in BHEL and hence the issue of its abolition does not arise.

Principle 6): Eliminate discrimination in respect of employment and occupation

Uniform set of rules are mentioned in "The Personnel Policy" of BHEL, which apply equally to all employees, irrespective of factors such as gender, caste, religion, race etc. All recruitments are conducted in a transparent and impartial manner, thereby, giving equal opportunity to all eligible candidates, without any discrimination whatsoever.

Environment

Principle 7): Businesses should support a precautionary approach to environmental challenges

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.

The organization has well established Environmental Management System (EMS) accredited to ISO 14001:2004/2015 in all major manufacturing units and Power Sector (PS) regions. Our HSE policy has been reviewed during the year 2018-19 and modified in line with the requirement of ISO 14001:2015 Environmental Management System standard. The EMS provides us an excellent framework to proactively identify & manage the risks related to Environment in a systematic manner and thus help in adoption of precautionary approach to environmental challenges.

In sync with the efforts of entire world for mitigating the effect of climate change, BHEL has been consciously making efforts to develop greener products having lesser environmental footprint and enable our customers to generate power during the entire life cycle of the power plant in a more environmentally benign way. In its internal operations also sustainable use of natural resources is given due importance to reduce the carbon footprint of our operations.

Principle 8): Undertake initiatives to promote greater environmental responsibilities

The concept of Sustainable Development is ingrained to the management processes of BHEL and the same is reflected in our mission statement “Providing Sustainable Business Solutions in the fields of Energy, Industry & Infrastructure”. Sustainability is a value proposition in itself for BHEL as it helps us in the business facets like - exploring new horizons for cost reduction and improving efficiency, creating & enhancing brand value, identifying & mitigating the regulatory as well as business risks, spurring innovation, and instill sense of pride among the employees.

The triple bottom line approach for Sustainable Development ensure that our management decisions are made keeping natural environment, good governance, inclusive development of society – the pillars of sustainable development in right perspective and attain business growth in an ethical manner.

To address the consideration for natural environment, our efforts towards environmental enrichment are aimed to restore the environment in its pristine self and reduce our environmental footprint to the extent feasible. In our value chain this is reflected in our efforts towards development of cleaner products through R&D efforts aimed at reducing the overall environmental footprint associated with their life cycles. In our internal processes, efforts in this area is amply reflected in our enhanced use of renewable energy, increase in activities aimed at improving energy efficiency of the machines and systems, conserving natural resources through principles of reduce-recycle-reuse (3R), use of cleaner fuels, and responsible waste management.

To spur inclusive growth of the society at large and populace near our physical presence in particular, the organization strives to make a positive impact on the society through its CSR programme and creation of social infrastructure. To achieve the multiplier effect in its efforts towards environmental management, the organization is creating awareness amongst the families of our employees, students, people residing in the vicinity and other stakeholders as to how they can contribute towards protection of environment as an individual, by celebrating World Environment Day (WED) / week / fortnight, Earth Day etc. with wider participation. Various competitions organized 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 glimpse of the journey which the organization has undertaken during 2018-19 while traversing the path of sustainability is given in the following section.

A. Material & Natural Resource Management

BHEL puts lot of thrust on efficient & effective use of natural resource and managing them sustainably. During the year 2018-19, some of the specific activities carried out for material and resource management 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, recycling and reuse of packing wood for packaging, making storage cup-boards etc., reuse of waste oil after reclamation, recirculation of hydraulic oil in the machine, 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 at HEP Bhopal, recycling of 1574 MT of sand in the process at HEP Bhopal etc.

B. 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 efficient 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. During the year 2018-19, specific activities carried out at our units pertaining to energy conservation and energy efficiency included – reduction in lighting load by installation of LED bulbs through replacement of conventional lighting fixtures; 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, centralized control panel for all equipment and accessories in some of the offices; laying of de-rated solar panels on the roof of buildings inside factory for generation of electricity which is used for lighting purpose at EDN – Bengaluru; use of turbo ventilators inside the factory sheds for improved ventilation etc.

Installed Capacity of Ground based Solar Systems:

- 12.5 MW at Trichy
- 5 MW at BAP Ranipet
- 1.5 MW at HPEP Hyderabad
- 250 kW at R&D Hyderabad
- 250 kW at HEP Bhopal
- 5 MW at HEEP Haridwar
- 2.5 MW at TP Jhansi

Total 27 MW_p at present

In the past couple of years, use of renewable energy has become a vital part of energy management strategy of the organization. It has helped us in generating clean energy inside our premises, reducing dependency on DG set for power, and avoid carbon footprint associated with the use of electricity. We have now 27 MW_p of land based major solar installations. Further, we have many roof-top based solar installation existing at our units and some more plants are under installation.

Total electricity generated through various renewable energy systems stood at 27.6 Million Units during 2018-19 as compared to 15.61 Million units during 2017-18 which shows a 76.8% increase in the generation of renewable energy during 2018-19 as compared to the last year.

C. Water and Biodiversity Management

Managing water and wastewater sustainably has been a core strength of our organization. Now most of units are using treated sewage for horticulture purpose in our organization and thereby saving the freshwater resource. 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 our factories Zero Liquid Discharge (ZLD) entities so as to conserve the water resource as well as reduce the pollution load of our water bodies. Some of our factories viz. HEEP & CFFP Haridwar, HEP Bhopal, HPEP Hyderabad, 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 are in progress so as to eventually make the units as ZLD. At our HEP Bhopal unit 2 sumps of cumulative capacity 5200 M³ have been created for rain water harvesting purpose. All the parameters of effluent are being checked periodically and are found to be within the prescribed limit as specified by respective State Pollution Control Boards.

At our units, mass tree plantation has been carried out during the year 2018-19 as well during the occasion of world environment day (WED) 2018. Further, it has now become a standard practice to get the sapling planted by retiring employees on the day of their superannuation to appreciate their contribution in shaping up the organization. During 2018-19, the number of saplings planted at HEP Bhopal was 8200, HEEP & CFFP Haridwar was 500, CFP Rudrapur was 110, TP Jhansi was 1500, CSUFP Jagdishpur was 170, IP Jagdishpur was 300, and PPPU Thirumayam was 200. In EDN Bengaluru unit 2500 saplings were distributed within city to enhance the green cover. So in this way more than 21500 saplings were planted by our units in and around their locations. These saplings and existing inventory of trees has been acting as a huge carbon sink, mitigating the air pollution and helping in recharging of ground water as well.

D. Carbon Management

Our concerted efforts towards energy management in a sustainable way through energy conservation / efficiency measures, use of renewable energy, and switching to the cleaner fuels have helped us in reducing our carbon footprint considerably. Due to use of green energy inside our premise which has been generated through various solar systems installed in-house, we have achieved a carbon footprint avoidance of nearly 26499 Metric Tons of carbon dioxide equivalent (MT CO₂-e) during 2018-19 alone which is nearly 71.5% more as compared to 2017-18 figure.

Waste Management

Managing the waste generated out of our operation in a sustainable manner has been a mainstay of our business practices. Efforts are made to reduce the generation of waste, reuse and recycle the waste generated out of our operations. Better nesting plan for cutting of metal sheets for reducing wastes, recycling of ferrous scrap in CFFP Haridwar unit, local reuse and recycling of various scraps

generated at units are helping us in managing our waste through the principle of 3R (reduce-recycle-reuse).

Some of the examples of specific activities carried out for sustainable waste management across BHEL during 2018-19 included - composting of organic waste at - HEEP Haridwar, IP Jagdishpur, HERP Varanasi, HPBP Trichy; providing different types of bins for storage of different types of scraps like iron, plastic, used oil, chemicals etc. at IP Jagdishpur, 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 in-house 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 Kilo Liter of oil at HPBP Trichy etc.

Across BHEL, solid wastes/scrap having resale value were collected, segregated, stored and sold to authorised recyclers. Hazardous wastes / E-waste were disposed off as per the stipulations in the relevant statutes.

Principle 9): Encourage the development and diffusion of environment friendly technologies

BHEL is contributing to a greener environment through development of environment friendly technologies, reduced emissions and improvement in efficiency of its equipment. Some of the steps taken in this direction are detailed below:

- ❖ 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 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.
- ❖ Further, 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 like modification in boiler design, modifications in the wind box firing system of Boilers and development of SCR catalyst and systems for NO_x reduction, installation of FGD systems for SO_x capture and improvement in particulate collection efficiency of ESPs. 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.

- ❖ BHEL is working indigenously on development of technology for the conversion of high ash Indian coal to methanol. The technology will be demonstrated initially at pilot scale with the production of 0.25 TPD of methanol. Successful implementation of this technology will help in utilizing the vast coal reserve available and significantly curb the rising imports bill of the country due to crude oil and improve upon the energy security of India.
- ❖ 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.
- ❖ 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 multi-Si Solar cells with efficiencies of 21% and 19 % respectively and shall be commercially deployed for production of higher efficiency Solar cells/ modules.
- ❖ 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.
- ❖ 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.
- ❖ BHEL is working on waste to energy generation projects and taken up development of incinerator of lower capacity with the help of academic institution.
- ❖ 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.

ANTI-CORRUPTION

Principle 10: Businesses should work against all forms of corruption, including extortion and bribery

BHEL undertakes major manufacturing and repair & services of heavy electrical equipment for which it has maintained a large database of vendors. Major activities of the company include procurement

from vendors and sub-contracting of works. Inspections (routine/ surprise/ Chief Technical Examiner type) were conducted by Vigilance across all the units/ regions/ offices of the Company. Deficiencies noticed during the inspections were shared with Management. Accordingly, systemic improvements have been advised so as to reduce discretion and increase transparency. Other deviations as and when noticed by Vigilance are brought to the knowledge of Management from time to time for issuance of circular/guidelines/systemic improvements in such areas.

Preventive Vigilance

- Action was initiated to review and update the Policies / guidelines / Manual, covering all critical and important activities in order to align them with the Govt. Policies / guidelines, to minimize discretionary powers and bring clarity in provisions where there is a scope for different interpretations.
- To increase the coverage of Integrity Pact, the threshold value for tenders has been further brought down from Rs. 10 crores to Rs. 5 crores. Further, Standard Operating Procedure for adoption of Integrity Pact has been reviewed as per the advice of CVC and revised procedure notified on 16.07.2018.
- Surprise inspections, routine inspections and CTE (Chief Technical Examiner) type inspections were conducted across all the units/ regions/ offices of the Company. Based on the observations and feedback, system improvements were recommended during the year. Based on the advice of Vigilance, following were implemented:
 - Revised policy on “Exigency Engagement of retired employees on fixed tenure basis” was issued on 06.03.2019.
 - Directions for following the instant guidelines strictly while opening Letter of Credit were issued vide IOM dated 30.07.2018.
 - Strict compliance of “Guidelines for issue of Experience Certificates” were reiterated vide circular dated 30.11.2018.
 - Instructions regarding maintenance of Hindrance Register in the prescribed format across all BHEL Units / Regions to avoid the contractual disputes with contractors were issued.
 - Clause 1.2.1(ii) of Guidelines for Suspension of Business Dealings with Suppliers/ Contractors was amended vide circular no. 38 of 2018-19 dated 6th November, 2018.
- Annual Property returns of 4524 employees were scrutinized during the financial year 2018-19.

Punitive Vigilance

- Vigilance took up 31 cases for investigation. Wherever lapses / irregularities directly attributable to Company officials were established by investigation, suitable disciplinary proceedings were recommended which resulted in imposition of penalties.
- Based on the findings in the investigations, advice was rendered by Vigilance and Disciplinary actions were taken by the respective Disciplinary Authorities.
- 232 Complaints (including 03 from CVC and 02 from DHI) were received during the year and 224 complaints were disposed off.
- Commission forwarded one complaint under PIDPI Resolution on which a report was submitted within the time limit.
- 67 reports (3419 paras) of Internal Audit have been scrutinized for vigilance angle. In 03 paras, vigilance angle was observed and detailed investigation was recommended.
- On the advice of Vigilance, action against 05 vendors was taken in line with 'Guidelines of Suspension of Business Dealings with Suppliers / Contractors'.

Participative Vigilance

- The Vigilance Awareness Week was observed from 29th October, to 3rd November, 2018 in Corporate Office, Manufacturing Divisions, Power Sector Regions and Project Sites of BHEL on the theme '**Eradicate Corruption – Build a New India**'. To spread awareness about ill effects of corruption amongst younger generation, activities such as lectures, panel discussions, debates, quiz, essay writing, slogans and poster competitions on moral values, ethics, good governance practices etc. were organized among students of various schools (59 schools covering 6159 students) / colleges (26 colleges covering 8615 students) across the country.
- Training programmes/ Workshops on Preventive Vigilance were conducted across the Units/ Regions. In all the Management Programmes organized by Corporate Learning & Development (CLD) department of BHEL, a session on preventive vigilance is being included. During the period, about 120 training programmes/ workshops were conducted for about 2956 non-vigilance officers.
- With a view to create awareness about procurement policy, rules and procedures etc., to disseminate the instructions/ guidelines issued by CVC and Government of India from time to time, to share best practices and case studies, Vigilance Department publishes Quarterly e-Newsletter 'DISHA'. Twenty-three issues have already been published.

Other Activities

- Regular Review meetings with CMD, BHEL were undertaken.
- As a part of Capacity Building, workshops for BHEL Vigilance Officers were organized at BHEL Bangalore on 15th June, 2018 and at Corporate Office from 15th to 16th November, 2018.
- Corporate Vigilance team has inspected following BHEL Units during the year 2018:

SN	Unit	Date From	Date To
(i)	Hyderabad	04.04.2018	06.04.2018
(ii)	Bhopal	23.04.2018	26.04.2018
(iii)	EDN / EPD/ESD	11.06.2018	15.06.2018
(iv)	PSER	05.02.2019	08.02.2019

- With a view to share the experiences, a meeting of executives from Corporate as well as Unit Vigilance and Internal Audit was held on 31.01.2019 at Corporate Office.
- Besides issues discussed above, the following new areas have been identified for focus in the near future:
 - o Comprehensive review of IT systems used by all Units / Regions.
 - o Implementation of Biometric attendance for Contract Workers.
 - o Review of contractors Margin in Labour based Service Contracts.
 - o Boundary wall / DGPS survey of BHEL land in all Units.
 - o Rotation of Officers posted on Sensitive Posts.
 - o Non-commissioning / non-utilization of high value capital equipment.
 - o Mechanism under SEARP/Guidelines for Suspension of Business Dealings with Suppliers/Contractors and make the evaluation of SRF mandatory before issuance of any trial /development order.
 - o Development of suitable System / work flow chart within Finance department.
 - o Standardization of payment terms to safeguard BHEL interest in respect of procurement of Capital equipment / items.
 - o Review of tender terms issued by units regarding Fabrication, Machining, Subcontracting of Bought Out Items or similar works across all the units in line with Purchase Policy, 2013.

As part of Company's endeavor to set high standards of integrity, the Company has enforced its Conduct, Discipline & Appeal Rules.