



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

Bharat Heavy Electricals limited (BHEL), a Government of India enterprise, is the largest engineering and manufacturing enterprise of its kind in India and is one of the leading international companies in the field of power equipment manufacturing.

BHEL is an environment friendly company in all its activities, products & services, besides providing safe and healthy working environment to all its stakeholders. All manufacturing units / regions of the company are accredited to latest international standards viz. ISO-14001 certification for Environmental Management System (EMS) and OHSAS – 18001 certification for Occupational Health and Safety Management Systems.


The company reiterates its commitments to United Nation's Global Compact (UNGC) Programme and intent to advance UNGC Principles within the company's sphere of influence and has ingrained it in its strategy, culture and day-to-day operations.

The company publically advocates UNGC principles to its Stakeholders through Annual Report, Press Conferences and other public communiqués.

BHEL has also taken a lead role in promoting UNGC principles in other Indian Organizations through Global Compact Network by organizing case studies / organizational experience sharing & addressing the Global Compact principles in Indian Context.

BHEL's performance (2010-11) on each principle of Global Compact is also available on Company's web site ([www.bhel.com](http://www.bhel.com)) uplinked to UNGC website.

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(Anil Sachdev)

## **BHEL Performance 2010-11 – Global Compact Principles**

### **Human Rights**

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

BHEL policies have been meticulously drafted and followed, keeping the principles of Human Rights, the Constitution of India, Labour law etc., in mind. BHEL has special provisions for ensuring safeguard of women employee at the workplace. Principle of Natural Justice are enshrined in “BHEL Conduct, Discipline and Appeal Rules” applicable to all its employees.

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

BHEL's strong ethos does not leave scope for any kind of Human Rights Abuse within its sphere of influence.

### **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 adhered to in BHEL. All Heads of BHEL units are required to submit a report about compliances with different laws. This is done to ensure that the interests of the workers are protected.

Apart from this, BHEL has various bi-partite for workers, where the issues / problems pertaining to the workers are discussed and settled. BHEL has also an apex level bipartite forum called joint Committee wherein the representatives of all units of BHEL, along with the Central Trade Union Organization, to which the Unions are affiliated, are represented from the workers' side and the Management is represented by Chairman and functional Directors along with the Heads of Units.

As part of our efforts to take the participative culture to a higher pedestal, BHEL has been organizing “Workshops” related to various themes namely Productivity, Organizational Excellence etc. During these workshops employees are sensitized about the challenges being faced by the Company and on evolving strategies to meet the challenges and customer commitment. BHEL has organized three special sessions of Joint Committee in Workshop format during the years 2004, 2006 and 2008. Syndicate groups were formed on various topics like strengthening of participative fora, percolation

of discussions in the Joint Committee to Plant level, multi-skilling, redeployment, effective utilization of critical machines, enhancing the productive time of man and machines, reduction in rejection and rework, maintenance and upkeep of machines, three shift working, enhancing productivity of employees, dissemination of company information, cost cutting measures at workplace and wastage control, improving quality and bringing quality consciousness among employees, reduction in cycle time, and sequential supplies from the units.

At the unit level, open forums are held wherein issues related to Production in monetary and physical terms, Productivity, Order Book, Cash Collection, Despatch, General Administration and Discipline etc. are held wherein the participants are from all categories of employees. 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 is a positive impact on the working in the unit.

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

The company neither employs forced and compulsory labour in any manner nor it ever ask 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 the employment in the company is 18 years. No person below this age can be employed in BHEL, thereby ensuring that child labour is not employed in BHEL. In fact, BHEL is "Zero Tolerance" company regarding employing of child labour.

**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 sex, cast, religion, race etc. All recruitments are conducted in transparent manner, giving equal opportunity to all eligible candidates without any discrimination whatsoever.

**Environment**

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

The Company is committed to be an environment friendly company in all its areas of activities, products and services besides providing safe and healthy working environment. In line with this, BHEL undertakes a number of Environment Improvement

Projects (EIPs) and Community Development Programmes. These projects helped in creating a pollution free environment, conservation of precious resources like energy, water, fuel oil coolant, lubricant besides installation of proper system for storage/handling of chemical wastes utilizing state of the art technologies. Some of the major EIPs executed in the recent past at BHEL manufacturing plants and townships included:

- Tree plantation drives,
- Installation of Rain Water Harvesting Systems,
- Conservation of natural resources, generation of energy from waste, efficient energy and water management
- Reduction in noise level,
- Improvement in chemical storage and handling systems etc.

BHEL has acquired ISO-9001 certification for Quality Management Systems (QMS), and all the major units/divisions of BHEL have been awarded ISO-14001 certification for Environment Management Systems (EMS), and OHSAS-18001 Certification for Occupational Health and Safety Management Systems (OHSAS). This has helped BHEL to enhance its image as a good corporate citizen.

BHEL has adopted a 'Health, Safety and Environment (HSE)' policy along with detailed guidelines under it. All units of BHEL strictly adhere to this policy. The HSE policy of BHEL is:

BHEL is committed to being an environment friendly company in all its activities, products, and services and to provide safe and healthy working environment to all employees as an integral part of business performance through:

- Compliance with applicable Legislation and Regulations.
- Continual improvement in the Occupational Health, Safety and Environmental Management Systems Performance.
- Promotion of activities for conservation of resources by Environmental Management.
- Enhancement of Environmental, Safety and Occupational Health awareness amongst employees, customers and suppliers by proactive communication and training.
- Periodical review of Occupational Health, Safety & Environmental Management Systems to ensure its continuing suitability, adequacy and effectiveness.
- Communication of this HSE Policy to all employees and interested parties.
- Coordination with concerned Government agencies/ regulatory bodies engaged in Occupational Health, Safety & Environmental activities.

Continuing its tradition of bagging prestigious awards during the year BHEL has received *Golden Peacock Award* for Occupational Health and Safety for two consecutive years which underscores its commitment towards better Occupational Health and Safety practices.

To support scientific research on the environmental issues involved, Pollution Control Research Institute (PCRI) at BHEL's Haridwar plant was set up under United Nations Development Programme (UNDP) with an objective to evolve technologies and provide consultancy services in the area of industrial pollution with respect to air, water, noise and solid waste. PCRI is equipped with modern monitoring and analytical facilities and powered by a team of highly qualified engineers and scientists. The expertise available at PCRI is continually upgraded through association with renowned experts in the field, strengthening the capabilities of the institute. The activities of PCRI cover the following areas:

- Environmental Impact Assessment e.g. for Thermal Power Plants, Oil Exploratory Drilling sites and other large industries
- Environmental Audit and Resource conservation
- Sponsored R&D Projects of Central Pollution Control Board (CPCB), Ministry of Environment and Forest (MoEF) etc.
- Performance evaluation of Pollution Control Systems and recommendations for corrective measures
- Monitoring & Analysis of pollution levels in air, water, solid waste
- Training & Development of Professionals engaged in Environmental protection
- Establishment of Environmental and Chemical Labs for Thermal Power Plants
- Consultancy Services

**Principle 8): Undertake initiatives to promote greater environmental responsibilities**

The company has enshrined the tenets of Sustainable Development in its core strategy. A Two tier (Corporate and Manufacturing Units) organization structure has been developed under Corporate HSE department of BHEL to establish, implement, monitor, measure and improve the Environment performance towards the objective of driving Sustainable Development. The organization strives for transparency and unbiased dialogue with the concerned stakeholders on the material issues.

As part of its commitment towards the social environment and as a responsible corporate citizen, BHEL is involved in a host of community development programmes in various parts of the country. BHEL has formulated a Corporate Social Responsibility (CSR) scheme way back in 2007-08. This CSR Scheme was pursued during 2008-09

and 2009-10 under eight thrust areas viz. Self-employment generation, Environment Protection, Community Development, Education, Health Management and Medical Aids, Orphanages and Old-age homes, Infrastructural Development, and Disaster / Calamity management.

In the past year the some of the activities in this regard included construction of community facility in villages, up gradation of schools, scholarship schemes for under privileged children, providing water facilities, organizing eye-camps, and creation of employment opportunities for unemployed women from downtrodden community.

In April 2010, the Department of Public Enterprises (DPE), Government of India, issued comprehensive guidelines on CSR for Central Public Sector Enterprises (CPSEs). These guidelines lay stress on the link of CSR with Sustainable Development and BHEL has adopted DPE's CSR Guidelines as its CSR policy from 2010-11 onwards. Based on this 8 priority areas have been identified in the company which are:

1. Environment Protection & Energy Conservation
2. Adoption of ITIs and setting up Skill Development Institutes
3. Vocational training
4. Education and Promotion of talents
5. Adoption of Villages & Community Development
6. Disaster / Calamity Management
7. Health Management, and
8. Infrastructural Development

The Memorandum of Understanding (MoU) 2011-12 of BHEL with Department of Heavy industry, Ministry of Heavy Industry and Public Enterprises includes thrust areas on Sustainable Development and CSR Relating to Environmental Protection, Energy Conservation, Energy Audit, Renewable Energy use, Water harvesting and enhancing green Coverage.

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

BHEL's products, including clean technologies are regularly monitored against those of other leading similar equipment manufacturers and relevant international standards. Gaps, if any, are identified and developmental projects are undertaken to bridge them.

BHEL has been actively developing and acquiring clean technologies for power generation over past three decades. BHEL initiated a coal research programme in the late seventies to develop technologies to efficiently utilize Indian Coal while minimizing the associated environmental impacts. These technologies enable BHEL's customers to

minimize the impact of power generation on the environment. Some of them are mentioned below:

- **Integrated Gasification Combined Cycle (IGCC)** - BHEL is one of the few companies worldwide, involved in development of technology. It is an advanced technology that represents the cleanest of currently available coal technologies. An IGCC power plant combines the benefits of two highly efficient and environmentally clean processes: coal gasification and gas turbine based combined cycle. The integration of these technologies yields high efficiency of the combined cycle design with low cost coal as fuel. Gasification also inherently reduces emission of Sox. Further as the coal gas is cleaned before being fired in the gas turbine, particulate pollutants in the exhaust gases are negligible.

BHEL has entered into MoU with APGENCO in May'2008 to set up a 182 MW IGCC plant at the Vijayawada Thermal Power Plant. In this regard, BHEL is pursuing with the Government of India for an early sanction of Rs. 350 Crore grant to partially cover the additional cost, as earlier recommended and as extended by various Governments internationally, which could enable this project of international importance to take off at the earliest.

- **Supercritical Thermal power Plant** – A Supercritical thermal power plant has higher efficiency compared to the conventional sub-critical cycle, thus offering the advantage of burning lesser fuel for the same output and with low emissions. For this, BHEL has entered into a technical collaboration agreement for Once-through supercritical boilers with M/s Alstom, France, one of the world leaders in this technology. For steam turbines, BHEL has an ongoing technical collaboration agreement with Siemens, Germany.

BHEL is executing orders for 660 and 800 MW supercritical steam generators and turbo generators. BHEL has also developed equipment for 700 MW supercritical applications.

- **Advanced Ultra Supercritical (Adv-USC) Thermal Power Plant Technology** - Government of India has proposed the creation of a National Mission for Clean Coal (Carbon) Technologies, as the Ninth Mission under the National Action Plan on Climate Change. Development of Advanced Ultra Supercritical (Adv-USC) Technology for Power Plants is one of four Sub-Missions in the Mission, wherein the objective is to develop and establish an 800 MW Adv-USC demonstration power plant. The major benefits of Adv-USC technology are higher efficiency, lower coal consumption and less carbon di-oxide emission per MWe-hour power

generated. The core group for the Mission comprises of Indira Gandhi Centre for Atomic Research (IGCAR), NTPC Ltd. and BHEL. For this, BHEL is actively pursuing work related to this area.

- **Advanced Class Gas Turbines** - BHEL has introduced Advanced Class Gas Turbine technology in the country in collaboration with General Electric, USA. The efficiency of an Advanced Class GT in the combined cycle mode is in the range of 56 - 57% under Indian conditions. Natural gas as fuel used in the gas turbine based combined cycle plants is the cleanest among the fossil fuels and produces the minimum pollution and carbon dioxide emission.
- **Sub-critical Thermal Power Plants with Enhanced Efficiency** - BHEL has been continually making efforts to improve the efficiency of thermal power plants. Since 1977, when 210 MW plants based on KWU technology were first introduced, the heat rate of BHEL's 210 MW and 500 MW steam turbines has reduced by about 5.4% and 3.1% respectively, resulting in reduced coal consumption. A new variant of 500 MW steam turbine has been introduced by BHEL wherein thermal performance of the cycle is about 0.6% better than that of the conventional cycle. A new cost effective and thermodynamically efficient plant with a unit rating of 600 MW has also been developed.
- **Hydro Power Plants** - BHEL is a leading manufacturer and supplier of hydro power plant equipment, including hydro turbines and hydro-generators. These are comparable to the best in the world in terms of operating efficiencies. The company is continuously expanding its range and is developing equipment to suit larger size power plants up to 250 MW.
- **Reduction of NO<sub>x</sub> and SO<sub>x</sub> Emissions** - Emissions of oxides from thermal power plants of nitrogen and sulphur are collectively called NO<sub>x</sub> and SO<sub>x</sub>, and are a health hazard. BHEL has developed in-house several technologies for reduction of emissions from thermal power plants. A Bypass Over Fire Air (BOFA) system has been successfully retrofitted at 250 MW Suratgarh TPP. Low NO<sub>x</sub> oil fired burners have also been developed. In addition, BHEL has developed a Selective Catalytic Reduction (SCR) system which can remove NO<sub>x</sub> from the flue gas.



Flue Gas Desulphurisation (FGD) systems remove sulphur dioxide from the flue gas. BHEL has supplied an FGD system for 250 MW Trombay thermal power plants in association with Mitsubishi Heavy Industries, Japan.

Circulating Fluidised Bed Combustion (CFBC) power plants, which are suitable for high sulphur content lignite, are also part of BHEL's product range.

- **Electrostatic Precipitators (ESPs)** - BHEL is the leading manufacturer and supplier of ESPs used for removing fly ash from the flue gas in the country, having efficiencies of over 99.9%.
- **Solar Photovoltaics (SPV)** - BHEL is one of the leading manufacturer and supplier of silicon solar cells in India. For this, the Company has manufacturing facilities for solar photovoltaic cells 8 modules at its Bangalore Unit with a capacity of 8 MW per annum. There is also an R&D facility, Amorphous Silicon Solar Cell Plant (ASSCP), located at Gurgaon.

BHEL's solar modules have been contributing to the national effort for development of farflung/remote areas. BHEL has supplied and commissioned SPV plants of different ratings for WEBREDA in the Sunderbans/ Sagar Island to provide power to remote village communities. BHEL has also supplied solar PV plants for the Lakshadweep Islands and the Company has recently won a major turnkey contract in June 2011 for setting up an eco-friendly Grid-Connected Solar Power Plant of 5 MW capacity from KPCL.

- **Fuel Cells** - Hydrogen energy promises to be the cleanest form of energy in the future. BHEL has been carrying out R&D on fuel cells for over two decades.

### **Anti-Corruption**

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

BHEL is committed to enhancing transparency in all its business decisions, including extortion and bribery.

To achieve the objective, training programmes, seminars / conferences and interaction of Chief Vigilance Officer with the employees is a regular feature in the company. Main objective of the company is to curb corruption by focusing more on the preventive and educative aspects, rather than investigative / punitive measures.

With a view to bring in transparency, Government of India has enacted “Right to information Act” giving right to all citizens of India to seek information besides other rights of inspection etc. BHEL has taken lead role in implementing all provisions of the act in letter and spirit.

The organization has signed the ‘Integrity Pact’ with Transparency International on 16.12.2008. Three independent External Monitors (IEM) have since been appointed on 17.12.2009 with the approval of the Central Vigilance Commission. The intention is to make public procurement and contacting more transparent by binding both the parties to ethical conduct. This would enable a monitoring role for civil society – the ultimate beneficiary. During the year 2010-11, the provisions have been corrected to include more number of purchasing decisions in the ambit of the Integrity Pact.

In order to prevent corruption, a host of ‘transparency measures’ have been initiated company wide, by leveraging various technologies. Some of these measures are:

- Information relating to Rules/Procedures governing the registration of vendors, clearances of bills etc. is available on the BHEL / Units’ web site.
- Vendor registration applications, vendor registration process and status of vendor registration process are available on the Company’s web site.
- Purchase indent are raised On-line.
- All tenders are hosted on the Company’s web site.
- All details of purchase orders and contracts concluded are available on the Company’s web site.
- All payments are made through the electronic mode.
- Bill payment status of all vendor bills is constantly updated on the web site.

As part of company’s endeavor to set high standards of conduct for its employees, a code of Business Conduct and Ethics has been laid down for all Board members and Senior Management Personnel. The code encompasses General Moral Imperatives, Specific Professional Responsibilities, and Additional duties/imperatives for them.