



# SUSTAINABILITY REPORT

## 2013-14

## VISION



**A global engineering enterprise providing solutions for a better tomorrow**

## MISSION



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

## VALUES

- GOVERNANCE** : We are stewards of our shareholders' Investments and we take that responsibility very seriously. We are accountable and responsible for delivering superior results that make a difference in the lives of the people we touch.
- RESPECT`** : We value the unique contribution of each individual. We believe in respect for human dignity and we respect the need to preserve the environment around us.
- EXCELLENCE** : We are committed to deliver and demonstrate excellence in whatever we do.
- LOYALTY** : We are loyal to our customers, to our company and to each other.
- INTEGRITY** : We work with highest ethical standards and demonstrate a behaviour that is honest, decent and fair. We are dedicated to the highest levels of personal and institutional integrity.
- COMMITMENT** : We set high performance standards for ourselves as individuals and our teams. We honour our commitments in a timely manner.
- INNOVATION** : We constantly support development of newer technologies, products, improved processes, better services and management practices.
- TEAM WORK** : We work together as a team to provide best solutions & services to our customers. Through quality relationships with all stakeholders we deliver value to our customers.

**GR-ELICIT**





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## Chairman & Managing Director's Message



*Dear Stakeholders,*

At BHEL, Sustainable Development is not new. During all the fifty years since our incorporation, we have been leveraging technology and innovation for providing products, systems and services to our customers to enable them to use resources with better efficiency and productivity.

The relationship between BHEL, its products, its employees, its customers and the society is - to use the unavoidable metaphor - is like a river, the deeper it gets the less noise it makes. It has been just a natural extension of the way we saw ourselves and our responsibility. It has always been a way of our doing business. It's an entrenched part of our history, how we have been consistently making profits since 1971-72 through the principles of sustainability at every stage.

With first order for 500 MW in 1978, 660 MW and 800 MW in 2008 and 700 MW in 2010, we have been progressively introducing environment friendly and fuel efficient technologies and continuing to work with a mission of providing sustainable business solution to our customers. As decarbonising power sector is at the heart of global efforts to make deep cuts in global CO<sub>2</sub> emissions, BHEL is committed to offer sustainable technologies and products to its customers. It is a matter of pride that during 2013-14, the first BHEL make 660 MW Supercritical unit was commissioned for NTPC at Barh and first 800 MW Boiler was synchronised for APPDCL at Krishnapatnam.

BHEL is committed to its innovation-led growth strategy. During the year, BHEL invested ₹ 1,114 Crore on R&D - 2.76% of the turnover and also filed 434 patents and copyrights, enhancing the



company's intellectual capital to 2,589, which are in productive use. Many of these projects are focused towards providing cleaner technologies suitable for the future markets.

In fact, on the sustainability dimension, BHEL has a much higher responsibility in delivering products that enable all its customers service the society in a socially and ecologically acceptable way, while remaining profitable. We empower our customers in this endeavour by offering equipment with better performance attributes like lower auxiliary power consumption, better plant heat rate & PLF and finally lower life cycle cost. According to a report for benchmarking of operational efficiency parameters, BHEL supplied sets show superior performance in comparison to that from other global suppliers.

As always, our customers join us, challenge us, engage with us, and help us do it better. Considering that availability of adequate land for future power projects would come at a premium, we have started to work on optimized plant layouts to reduce the power-plant footprint. Similarly to address the scarcity of water we are engineering power plants that would use lesser water by incorporating air cooled condensers, etc.

Therefore, our company has not just implemented sustainability measures in our own plants but is also through jointly working with our customers to change the world for the better.

BHEL is committed to follow the best corporate governance practices in all its pursuits, aligning with its economic, social and environmental objectives. We manage all affairs of our company in an ethical and transparent manner and communicate truthfully with all our stakeholders. BHEL operates with the ultimate objective of creating wealth and to enhance shareholder value in the long term.

**(B. Prasada Rao)**

## Message from Director (HR)



*Dear Stakeholders,*

It is with immense pride and pleasure that I place before you BHEL's annual Sustainability report. The report is a reflection upon some of our key activities for the 2013–2014 fiscal year related to Sustainable Development and provides an opportunity for us to share our achievements, recognize where we need to further advance our efforts, and provide insight into where we are going as an organization.

BHEL believes that while Governance for sustainability, stakeholder engagement and disclosure on sustainability issues forms the bedrock for embedding sustainability within the corporate DNA, the organizational performance on Environmental and Social issues linked with its business is the ultimate measure for sustainability.

Any successful initiative requires being loaded with enabling structures right from the beginning. For sustainable development, a guiding force has been created in the form of a 'Sustainable Development Policy' and enabling framework in terms of Board Level Committee (BLC) for CSR & Sustainability has been formed. BLC mentors the journey in terms of transforming and translating vision of the organization in line with the mission and policy whereas Nodal Officers at each Manufacturing Unit's level conforms to the vision in shaping the Manufacturing Unit towards a common future. The BLC is supported by Corporate HSE group which acts as an enabler to provide unwavering support to the units for meeting the objective set out by the BLC in measurable terms.

To address the environmental sustainability, BHEL takes up several environmental improvement / Sustainable development projects which enables our organization to minimize our environmental footprint. A 5 MWP Solar power plant at Ranipet is a hallmark in our efforts towards ensuring environmental sustainability. To address the challenges being faced by our society, BHEL has developed its CSR programme which is focused to contribute towards broader objective of achievement of social equity. These efforts have been captured by Corporate HSE group in this report.

Going forward, it is overall a testing time for power sector players in India. However, with the pool of human resource having such a vast work experience and having an enabling framework in place, we are bound to persevere and tide over these tough times and take our organization ahead in the path of Sustainability. I invite your feedback for making our future sustainability report more refined.



(R Krishnan)



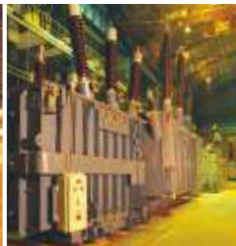


## ORGANIZATIONAL PROFILE

# World of BHEL



POWER



TRANSMISSION



INDUSTRY



TRANSPORTATION



RENEWABLES



OIL & GAS



DEFENCE



WATER



### Vision

A global engineering enterprise providing solutions for a better tomorrow

### Mission

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



### Values

- Governance
- Excellence
- Integrity
- Innovation
- Respect
- Loyalty
- Commitment
- Team Work



### Wingspan

#### Pan India

- 17 Manufacturing Units
- 1 Subsidiary
- 6 Joint Ventures
- 8 Service Centres
- 2 Repair Units
- Infrastructure to deal with 150+ project sites

#### Global Footprints

- First export order for boilers (2x60 MW) from Malaysia, 1971
- Commissioned first 120 MW BTG & sub-station unit on turnkey basis at Tripoli, Libya in 1980
- References in 76 countries
- Offices in 8 countries
- Contracted power plant equipment around 17,000 MW
- Executing 28 projects spread over 20 countries

### The Gentle Giant

- An Indian Maharatna CPSE
- One of the largest engineering & manufacturing companies in India serving core sectors of economy-
  - Power
  - Industry
- Transmission / Transportation/ Oil & Gas/ Renewables/ Water/ Defence/Industrial products -Electrical & Mechanical
- One of the few Major Integrated Power Plant Equipment Manufacturers
- Power Plant Equipment Manufacturing Capacity of 20,000 MW p.a.
- 57% share in India's total installed power generation capacity



## ORGANIZATIONAL PROFILE



### Triple Bottom Line Performance

- Profit making company since 1971-72
- Consistent dividend paying company since 1976-77
- First listed its equity shares on stock exchanges in 1992
- Market capitalisation crossed ₹ 1,00,000 Crore in 2007
- Participative management culture through Joint Committee, Plant Council, Shop Council since 1973
- 55% engineers among all Executives & 5.6% women among 47,525 employees
- 73,000 eye donations pledged under 'Vision to all-BHEL's Call'
- Committed to UN Global Compact
- HPBP Tiruchi - 100% treated trade effluent water used for internal irrigation
- Low lifecycle cost of equipment facilitating development of affordable and environmentally sustainable energy systems



### Innovation

- R&D Expenditure >2.5% of Turnover- highest in Indian engineering field
- Filing more than 1 patent/ copyright per day
- Total Intellectual Capital: 2,589
- 14 Centres of Excellence
- Focus on low-carbon path technologies & renewables



### Nation Building

- Built India's capability in power plant equipment manufacturing
- Focus on Technology absorption & Technology development and highest Value Addition in the Indian engineering industry
- 148 GW - Installed base of power plant equipment
- 30000+ AC machines - supplied, largest Indian manufacturer
- 85+MW - Cumulative shipments of PV cells, modules and systems
- 360 Locos & 377 Diesel Shunters - Supplied to Indian Railways & other industries
- 375+ Compressors & 86+ Oil drilling Rigs - supplied
- 40+ Oil Rigs - Refurbishment & Upgradation completed



### Landmarks

- Incorporated as 'Bharat Heavy Electricals Ltd.' in 1964
- Crossed Turnover mark ₹ 50,000 Crore in 2012-13
- First commissioning: 500 MW in 1984, 600 & 660 MW in 2013, 800 MW (Sync.) in 2014
- Conferred 'Maharatna' status in 2013
- Celebrated Golden Jubilee in 2014







## About the organization

Embarking upon the 50<sup>th</sup> Golden Year of its journey of engineering excellence, Bharat Heavy Electricals Limited (BHEL) is an integrated power plant equipments manufacturer and one of the largest engineering and manufacturing company of its kind in India engaged in the design, engineering, manufacture, construction, testing, commissioning and servicing of a wide range of products and services for the core sectors of the economy, viz. Power, Transmission, Industry, Transportation (Railway), Renewable Energy, Oil & Gas and Defence with over 180 products offerings to meet the needs of these sectors. Establishment of BHEL in 1964 was a breakthrough for upsurge in India's Heavy Electrical Equipment industry. Consistent performance in a highly competitive environment enabled BHEL attain the coveted 'Maharatna' status in 2013.



**BHEL's Heavy Electrical Plant, Bhopal**

BHEL, as a part of Pt. Jawaharlal Nehru's vision was bestowed with the onus to make the country self-reliant in manufacturing of heavy electrical equipment. This dream has been more than realised and BHEL's contribution in nation building endeavour is going to continue likewise. Today, with 20,000 MW per annum capacity for power plant equipment manufacturing, BHEL's mammoth size of operations is evident from its widespread network of 17 Manufacturing Units, 2 Repair Units, 4 Regional Offices, 8 Service

Centres, 8 Overseas Offices, 6 Joint Ventures, 15 Regional marketing Centres and current project execution at more than 150 project sites across India and abroad. The total installed capacity base of BHEL supplied equipment in India stands at 138 GW, this speaks volumes about the contribution made by BHEL to India's power sector.

BHEL's 57% share in India's total installed capacity and 65% share in the country's total electricity generation from thermal utility sets (coal based) as of March 31, 2014 stand testimony to this. The company has been earning profits continuously since 1971-72 and paying dividends since 1976-77, which is a reflection of company's commendable performance throughout.

BHEL also has widespread overseas footprint in 76 countries with cumulative overseas installed capacity of BHEL manufactured power plants nearing 10,000 MW including Malaysia, Oman, Libya, Iraq, the UAE, Bhutan, Egypt and New Zealand. The high level of quality & reliability of BHEL products and systems is due to adherence to international standards by acquiring and adapting some of the best technologies from leading companies in the world including General Electric Company, Alstom SA, Siemens AG and Mitsubishi Heavy Industries Ltd., together with technologies developed in its own R&D centres. Most of its manufacturing units and other entities have been accredited to Quality Management Systems (ISO9001:2008), Environmental Management Systems (ISO14001:2004) and Occupational Health & Safety Management Systems (OHSAS 18001:2007).



**2x363 MW Gas-based Power Plant, OTPC-Palatana**

BHEL has faced challenges with aplomb throughout all the phases of its illustrious journey. Right from its incorporation in a protected market to facing the pressures of a liberalized economy and the current slowdown in the economic environment, BHEL has evolved with transforming its strategies from product manufacturing to market orientation; business excellence through portfolio restructuring ushering in the realm of sustained growth through diversification. BHEL owes its dexterity to the strong culture of strategic planning initiated in 1970s and today, the company is pursuing its seventh Corporate Plan with focus on capability enhancement, project execution, cost competitiveness & quality, diversification, engineering & technology, and people development. Diversification in transportation, transmission, water & renewables is the strategy adopted to maintain a balanced portfolio of offerings. The upcoming Ultra Mega Solar Power Project & MEMU coach factory in Rajasthan and integrated manufacturing facility for Solar PV systems in Maharashtra are the green shoots in this direction.

This strategy of diversifying and capitalising new business opportunities in addition to expansion of offerings in Power Sector stems from the commitment to innovation led growth which is an indispensable part of BHEL's business model.

This is discernible through the new R&D policy aimed at product development and indigenisation. R&D focus of the organisation is quite diverse ranging from advance ultra-supercritical thermal power plants to IGCC based Power plants and grid interactive renewable energy systems.

BHEL's greatest strength is its highly skilled and committed workforce of more than 47,000 employees who have been the cornerstone of BHEL's successful journey. Further, the concept of sustainable development is inculcated in the DNA of BHEL which is evident from its mission statement- "providing sustainable business solutions in the fields of energy, industry and infrastructure". BHEL is also engaging with the society pursuing initiatives aimed at Community Development, Health & Hygiene, Education, Environment Protection, Disaster Management and Talent Up gradation/ Skill Development.

The future is filled with both exciting opportunities & gruelling challenges. With the golden legacy of 50 illustrious years on its side, BHEL has embraced this business dynamism by expanding its offerings and enhancing competitiveness seeking to realize its long term vision and stay relevant with the changing times. Creating new business avenues and maximizing the utilization of available infrastructure will be the key to future growth and stakeholders' wealth enhancement.



Final rotor assembly area at Heavy Electrical Equipment Plant, Haridwar





## Primary Products and Services

BHEL supplies end-to-end systems, Products and Engineering, Erection & Commissioning services for thermal power plants encompassing steam turbines, generators, boilers and matching auxiliaries up to 1000 MW ratings, including sets of 660/700/800 MW based on supercritical technology. BHEL has proven capabilities for executing thermal power projects on Engineering, Procurement & Construction (EPC) basis and is executing numerous prestigious projects on EPC basis including Supercritical sets of 660/700/800 MW ratings. To make use of lignite reserves available in India, BHEL also supplies circulating fluidized bed combustion (CFBC) boilers for thermal plants. BHEL is one of the few companies worldwide, involved in the development of Integrated Gasification Combined Cycle (IGCC) technology which would usher in clean coal technology.

The company manufactures 220/235/500/540/700 MWe nuclear turbine-generator sets and is geared up to take higher rating nuclear sets. Custom made conventional Hydro turbines of Kaplan, Francis and Pelton types with matching generators, pump turbines with matching motor generators upto 300 MW are also engineered and manufactured by BHEL.

The company has proven expertise in Plant Performance Improvement through renovation, modernisation and uprating of a variety of power plant equipment, besides specialized know-how of residual life assessment, health diagnostics and life extension of plants.

Some of the major products of BHEL are Thermal, Nuclear, Gas-based, Hydro & DG Power plants, Industrial Sets, Castings and Forgings, Boilers, Boiler Auxiliaries, Soot Blowers, Valves, Piping Systems, Seamless Steel Tubes, Condensers and heat exchangers, Pumps, Desalination and Water treatment Plants, Automation and Control Systems, Power Electronics, Transmission System Control, Power Semiconductor Devices, Solar Photovoltaic, Defence Electronics, Software System Solutions, Switchgears, Bus Ducts, Transformers,

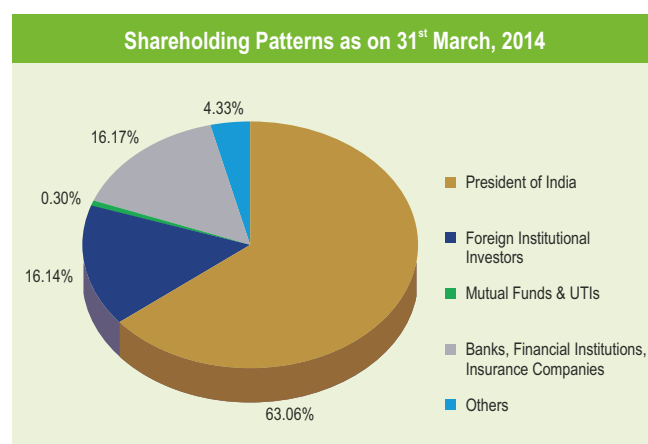
Insulators, Industrial and Special Ceramics, Control Panel, Capacitors, Bushings, on Load Tap Changers (OLTC), Electrical Machines, Compressors, Control Gear, Transportation Equipment, Traction Drive Systems, Oil Field Equipment, Distributed power Generation and Small Hydro Plants, Systems and Devices, Industrial Systems etc. For details, please refer to page 256-265 of BHEL's Annual Report 2013-14 ([www.bhel.com](http://www.bhel.com)).

## Location of Organization

The widespread network of 17 Manufacturing Units, 2 Repair Units, 4 Regional Offices, 8 Service Centres, 8 Overseas Offices, 6 Joint Ventures, 15 Regional marketing Centres and current project execution at more than 150 project sites across India and abroad enables the Company to promptly serve its customers and provide them with suitable products, systems and services - efficiently and at competitive prices. BHEL's headquarters is situated in New Delhi.

## Nature of ownership and legal form

BHEL is a public sector undertaking with 63.06% stake held by Government of India. It was established in 1964 under The Companies Act, 1956. The shareholding pattern of the company as on 31<sup>st</sup> March 2014 is shown in the Figure below.



The detailed break-up of BHEL's shareholding pattern for the last 2 years is shown in the table below:

Category	Voting strength (%)	
	2014	2013
Promoters Holding		
President of India (Pol)	63.06	67.72
Non-promoters Holding		
Mutual Funds & UTI	0.30	1.00
Banks, FI, Insurance Companies	16.17	11.41
FII (including Qualified FI)	16.14	14.76
Others		
Bodies Corporate	0.96	1.50
Individuals	2.89	3.23
NRIs	0.22	0.24
Trust	0.05	0.03
Clearing Members	0.21	0.11
Total Non-promoter holding	36.94	32.28
<b>Grand Total</b>	<b>100.00</b>	<b>100.00</b>

## Markets Served

BHEL is the largest manufacturer in India of products & systems for thermal, nuclear, gas, hydro-based utility and captive power plants. BHEL Supplies Steam turbines, generators, boilers and matching auxiliaries up to 800 MW ratings including supercritical sets of 660/700/800 MW. BHEL has facilities to go up to 1000 MW unit size. The installed capacity of BHEL supplied utility sets went past One Lakh MW mark totalling to 115500 MW and BHEL maintained its lion's share of 57% in the country's total installed capacity comprising Thermal, Hydro and Nuclear sets. Nearly 70% of the country's total generation of 691 Billion Units from Thermal Utility Sets is contributed by BHEL supplied sets.

BHEL is engaged in design, engineering, manufacture, construction, testing, commissioning and servicing of a wide range of products and services for the core sector of economy, viz. Power, Transmission, Industry, transportation, Renewable Energy, Oil & Gas and Defence.

BHEL is a major player in various industry verticals like – Captive Power, Power Transmission, Rail Transportation, Oil & Gas, Defence and New & Renewable Energy. Major customers falling under these business verticals are power generators, industries like metals, oil etc.

BHEL has, over the years, established its references in 76 countries across the world. Some of the major successes achieved by BHEL have been in Gas-based power projects in Oman, Libya, Malaysia, UAE, Saudi Arabia, Iraq, Bangladesh, Sri Lanka, China, Kazakhstan; Thermal power projects in Cyprus, Malta, Libya, Egypt, Indonesia, Thailand, Malaysia, Sudan, Syria, Ethiopia, Senegal, New Caledonia; Hydro power plants in New Zealand, Malaysia, Azerbaijan, Bhutan, Nepal, Taiwan, Tajikistan, Thailand, Afghanistan, Vietnam, Rwanda; Compressors in Oman, Iraq, France and Substation projects & equipment in Philippines, Ghana, Tanzania, Laos, Malaysia, Libya, Zambia, Saudi Arabia, Iraq, Ethiopia, Nepal, Bangladesh, and Afghanistan. Execution of these overseas projects has also provided BHEL the experience of working with world renowned consulting organizations and inspection agencies. For further details, please refer to page 8-12 of BHEL's Annual Report 2012-13 ([www.bhel.com](http://www.bhel.com)).

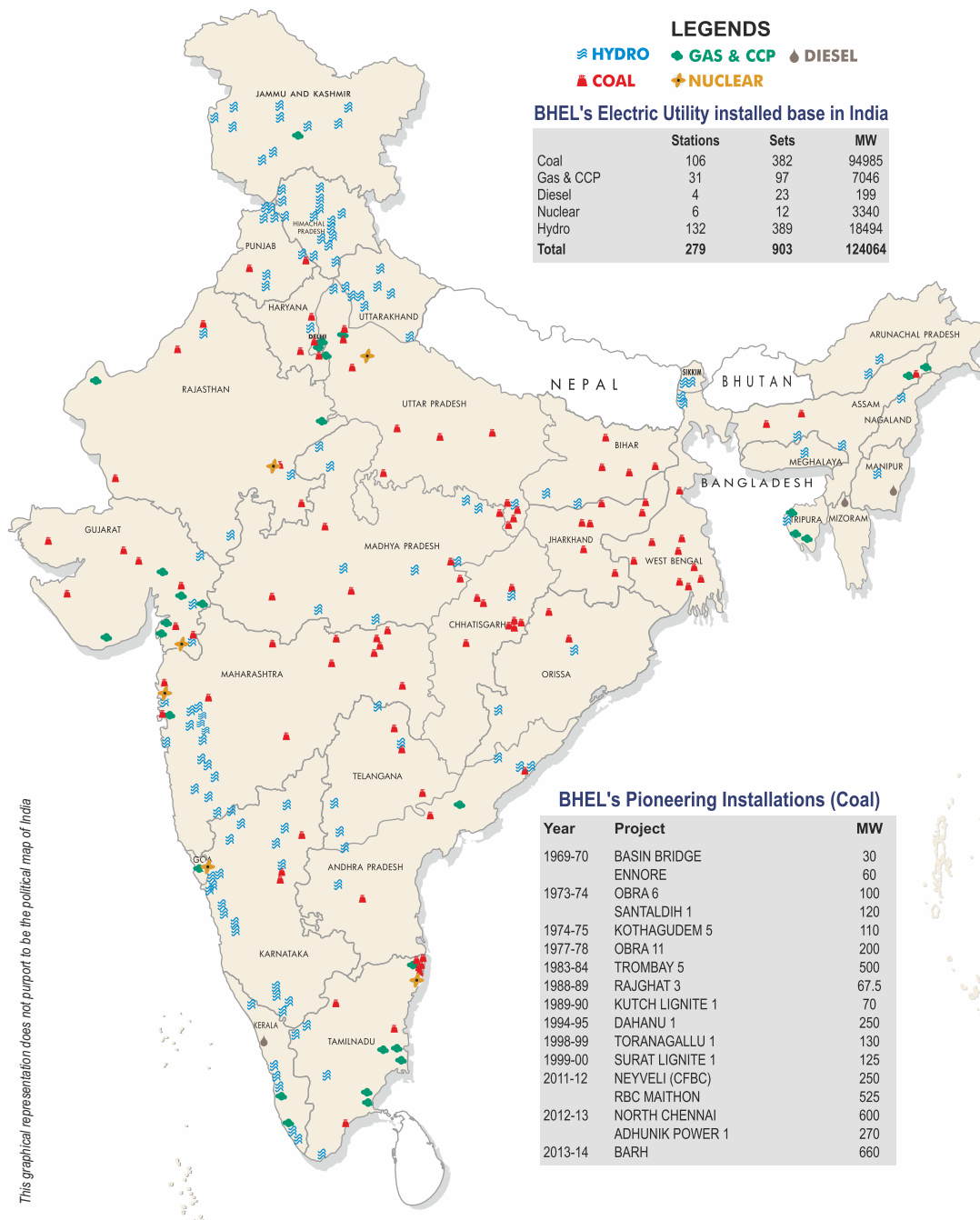


## Scale of organization

### BHEL Make Electric Utility Installations

#### Coal, Gas, Nuclear, Diesel and Hydro Projects

Commissioned as on 31.03.2014



## Global Footprints of BHEL



### AFRICA

ALGERIA  
BURUNDI  
DR CONGO  
EGYPT  
ETHIOPIA  
GHANA  
KENYA  
LIBYA  
MALAWI  
MAURITIUS  
NIGERIA  
RWANDA  
SENEGAL  
SOUTH AFRICA  
SUDAN  
SWAZILAND  
TANZANIA  
UGANDA  
ZAMBIA  
ZIMBABWE

### ASIA

AFGHANISTAN  
BANGLADESH  
BHUTAN  
CHINA  
HONG KONG  
INDONESIA  
IRAN  
IRAQ  
JAPAN  
JORDAN  
KAZAKHSTAN  
KUWAIT  
LAOS  
MALAYSIA  
MYANMAR  
NEPAL  
OMAN  
PHILIPPINES  
SAUDI ARABIA  
SINGAPORE

### SRI LANKA

SYRIA  
TAJIKISTAN  
TAIWAN  
THAILAND  
UAE  
VIETNAM  
YEMEN

### EUROPE

AZERBAIJAN  
BELARUS  
BULGARIA  
CYPRUS  
FRANCE  
FINLAND  
GEORGIA  
GERMANY  
GREECE  
ITALY  
IRELAND  
MALTA

### POLAND

ROMANIA  
RUSSIA  
SWEDEN  
SWITZERLAND  
TURKEY  
UKRAINE  
UK

### NORTH AMERICA

CANADA  
TRINIDAD AND TOBAGO  
USA

### OCEANIA

AUSTRALIA  
NEW ZEALAND  
NEW CALEDONIA  
SAMOA

### SOUTH AMERICA

SURINAME

There have not been any significant changes to operation as compared to previous year.





## Workforce of BHEL – Bedrock of strength of the organization

The greatest strength of BHEL is its highly skilled and committed workforce. 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 no. of workers with Contractors varies from time to time.

Some salient points about the employee base as on 31.03.2014 are as follows:

- The total number of permanent employees - 47525
- Total number of people given employment by BHEL's contractors – 24000 (approx.)
- Number of permanent women employees - 2640
- Number of permanent employees with disabilities – 954

In BHEL, only the workmen cadre which constitutes roughly 53% of the total manpower strength, are covered by agreements arrived at through the process of collective bargaining in the joint committee of BHEL. BHEL has 30 participating unions in respect of workman. There is one employee association for executives and supervisors in BHEL.

## Supply Chain

BHEL has enhanced its manufacturing capacity to 20,000 MW per annum and is fully geared to meet the country's target of enhanced capacity additions in the coming five year plans, which will enable the nation in achieving the generation capacity as envisaged in the Integrated Energy policy.

To maintain leadership position in the power plant equipment manufacturing sector in today's challenging business environment with fierce competitive pressure, the purchase policy of BHEL lays emphasis on procurement at competitive prices, timely procurement and delivery of input materials, equipment & systems from proven and reliable supplier base and faster decision making.

BHEL is committed to foster the most ethical and corruption free environment and values its relationship with all supply chain partners. Conducting business in a transparent, fair and corruption free manner will go in a long way in making the vendors and contractors our partners in progress and to reinforce this belief, BHEL has already signed a Memorandum of Understanding with transparency India international on Adoption of Integrity Pact by BHEL for all major tenders / contracts with threshold value of ₹ 10.0 Crores. For our supply chain partners, entering into Integrity Pact with BHEL has been made a preliminary qualification.

## Participation / endorsement of External Charters

BHEL has continued to play a prominent role in the United Nation's Global Compact (UNGC) Programme on CSR by promoting the core values on human rights, labour standards, environment and anti-corruption and intends to advance these principles forming part of its strategies & culture within its sphere of influence. BHEL demonstrated its commitment through regular pooling of communication of progress (COP) on the UNGC website as well as on BHEL's website ([www.bhel.com](http://www.bhel.com)). BHEL periodically submits annual Communication of Progress on the relevant principle of global compact in respect of Environment issues. Company publicly advocates with its employees and other stakeholders and regularly incorporates its commitments towards Global Compact Programme through its Annual Report, Press Conferences and other public documents. BHEL has now become life time member of UNGC, India.

In addition, BHEL has put in place a CSR Policy in line with Guidelines issued by Department of Public Enterprises, Govt. of India, and earmarked 2.0% of company's average net profit made in previous 3 years as non-lapsable CSR Fund.

## Memberships of associations

BHEL is a member of many trade and chambers / associations. Some of them are Confederation of Indian Industry (CII), Federation of Indian Chambers of Commerce

and Industry (FICCI), Associated Chambers of Commerce and Industry of India (ASSOCHAM), Indian Electrical and Electronics Manufacturers Association (IEEMA).

BHEL participates in policy advocacy through these bodies for promoting company's interests through knowledge sharing. Some of the recent examples of its public advocacy activities are development of Indian Power Sector and Indian Manufacturing Industry, strengthening of technology base in the country, skill development and growth of Public Sector Enterprises through better governance.

BHEL's inputs were provided to various trade and chamber and associations including Ministry of Commerce, Directorate General of Foreign Trade (DGFT) etc. for:

- ✓ Pre-Budget Memorandum
- ✓ Foreign Trade Policy

Besides, BHEL also participated in several committees set up by Govt. of India such as:

- ✓ Energy Security
- ✓ National Manufacturing Competitiveness Council (NMCC)

## Recognition of Excellence

Continuing its tradition of winning prestigious national/international awards in diverse arenas, BHEL and its employees won several awards during the year 2013-14. Notable among these include:

## Business Excellence & Industry Leadership

Trophy conferring Maharatna status on BHEL from Hon'ble President of India in recognition of company's consistent high performance

'NDTV Profit Business Leadership Award 2012' in the Engineering category for 3<sup>rd</sup> year in succession

'AIMA Managing India Award' for being the outstanding PSU of the year by All India Management Association-presented by Hon'ble President of India

'Jury Award for Lasting Impact on Indian Economy' by Governance Now



**BHEL has been conferred the India Pride Award 2013 for Excellence in Heavy Industries. The award was received by B. Prasada Rao, CMD, BHEL from Dr. M.M. Pallam Raju, Union Minister of Human Resource Development.**

'Dainik Bhaskar India Pride Award 2013' for Excellence in Heavy Industries category

'DSIJ Award 2013 for the Most Efficient Maharatna PSU' for 5<sup>th</sup> year in succession

'Industry Excellence Award' in Manufacturing & Processing category from Institution of Engineers, India

'45<sup>th</sup> EEPC India Award' for the 'Star Performer for 2012-13' in the Product Group of Project Exports

BHEL won two National Safety Awards in recognition of outstanding safety performance

'ICAI National Award for Excellence in Cost Management' for 8<sup>th</sup> year in succession

## Innovation

PSE Excellence Award 2013 for R&D, Technology Development and Innovation' in the Maharatna & Navratna CPSEs category by Indian Chamber of Commerce

'National Intellectual Property Award 2014' for being top Indian public limited company in patents

'Golden Peacock Award 2013 for Innovation Management' in recognition of R&D activities, expenditure & management of innovation

'World Intellectual Property Organisation (WIPO) Award for Innovative Enterprises' for BHEL's strong involvement in the use of the Patent system and its achievements in R&D



CMD, BHEL, receiving the 'BT-Star Award 2013 for Excellence in Innovation (Tech/R&D)' in the Maharatna/Navratna category, from Shekhar Dutt, Governor of Chhattisgarh, in the presence of Bhupinder Singh Hooda, Chief Minister of Haryana.



BHEL bagged PSE Excellence Award 2013 for R&D, Technology Development & Innovation in the Maharatna & Navratna CPSEs Category by the ICC.



Director (Power), BHEL, receiving the 'BT-Star Award 2013 for Excellence as Director (Projects)' in the Maharatna/Navratna category



BHEL conferred with Golden Peacock Innovation Management Award 2013

## Leadership

Sh. P.K. Bajpai, Director (Finance), BHEL awarded the 'Business Today Best CFO of a PSU Award' (Large Companies)

Sh. B. Prasada Rao, CMD, BHEL honoured with prestigious NITIE 'Lakshya Business Visionary Award 2013' in recognition & appreciation of his exemplary vision & extraordinary leadership

Sh. R. Krishnan, Director (HR) BHEL was conferred NIT-Trichy's Distinguished Alumnus Award by the former President of India, Dr. A.P.J. Abdul Kalam as part of Golden Jubilee celebrations of the Institute

Sh. B. Prasada Rao, CMD, BHEL awarded 'IET Outstanding Engineer Award 2013'

2 Workmen from BHEL were conferred 'Prime Minister's Shram Awards 2012' during the year  
15 Workmen from BHEL were conferred 'Vishwakarma Rashtriya Puraskar 2011' during the year

## Corporate Social Responsibility

BHEL bagged silver plate award for exemplary work in the field of health care services to the underprivileged under its CSR support initiatives by HelpAge India.



BHEL received Silver plate Award in recognition of its zeal and commitment to provide quality medical services to the underprivileged Instituted by HelpAge India.





## CORPORATE GOVERNANCE

BHEL believes that 'results are important' but it is equally concerned with 'how it achieves results'. Commitment to this principle is the foundation of company's Corporate Governance Policy which rests upon the four pillars of Transparency, Full Disclosure, Independent Monitoring and Fairness to all. With a clear vision and purpose based on a solid foundation of values, BHEL wants all its stakeholders, large and small, to see it as an attractive destination. The company has been consistently making efforts in adopting best governance practices that are critical to ensure optimization of returns and satisfaction levels accruing to all its stakeholders.

### Governance structure at BHEL

The Board of Directors is the apex body of decision making in the organization. The mandate of BHEL's Board of Directors is to oversee the Company's strategic direction, review and monitor corporate performance, ensure regulatory compliance and safeguard the interests of shareholders. It also ensures adherence to the highest ethical and moral standards.

The Board of Directors of BHEL has 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 the Chairman is an Executive Director, Independent Directors comprise half of the strength of the Board.

BHEL has a Unitary Board Structure with the following composition:

Particulars	Board Structure	Actual Strength as on 31.03.2014
Chairman & Managing Director	1	1
Whole-time Executive (Functional) Directors	5	4
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	0
<b>TOTAL</b>	<b>16</b>	<b>7</b>

As on 31<sup>st</sup> March, 2014, there were five Whole-time executive (Functional) Directors including CMD and two Part-time Official Directors (Government Nominees) on the Board of BHEL. There existed one vacancy of Director (E, R&D) and eight vacancies of Part-time Non-official (Independent) Directors on the Board of BHEL. With the appointment of 2 Independent Directors-Ms. Harinder Hira on 08.05.2014 and Shri A.N. Roy on 27.08.2014, there remain six vacancies of Independent Directors. The matter of filling up of these vacancies is under consideration of Department of Heavy Industry, Ministry of Heavy Industries & Public Enterprises, Government of India.





Further the Board has constituted the following Board-level Committees:

- 1) Board Level Audit Committee
- 2) Shareholders'/ Investors' Grievance Committee
- 3) Share Transfer Committee
- 4) Remuneration Committee
- 5) Remuneration Committee on Performance Related Pay
- 6) Project Review Committee
- 7) Committee on Mergers and Acquisitions
- 8) Board level Committee on Corporate Social Responsibility & Sustainable Development
- 9) HR Committee

For the details of the Committees of the Board with regard to their composition and respective Terms of Reference (responsibilities/mandate) as on 31.03.2014, reader may please refer to pp. 99 - 106 of BHEL's Annual report 2013-14.

As on 31.03.2014, the Board comprised of persons within the age group of 50-60 years and all were Male members. Currently, there is one Woman Director on the Board of BHEL. As on 31.03.2014, none of the Board members belonged to Minority groups. All Directors are eminent personalities having wide experience in the field of Management, Finance, Engineering, Administration and Industry.

The Chairman & Managing Director (CMD) is chair of the highest governing body (Board) and is also an executive officer.

As on 31.03.2014, there was no woman non-executive / independent Director on the Board of BHEL.

Upto 31.03.2014 BHEL defined "Independent Director" as per Clause 49 of the Listing Agreement and DPE Guidelines on Corporate Governance.

➤ As per Clause 49 of the Listing Agreement,

"Independent Director" shall mean a non-executive director of the company who:

- a. apart from receiving director's remuneration, does not have any material pecuniary relationships or transactions with the company, its promoters, its directors, its senior management or its holding company, its subsidiaries and associates which may affect independence of the director;
- b. is not related to promoters or persons occupying management positions at the board level or at one level below the board;
- c. has not been an executive of the company in the immediately preceding three financial years;
- d. is not a partner or an executive or was not partner or an executive during the preceding three years, of any of the following:
  - i) the statutory audit firm or the internal audit firm that is associated with the company, and
  - ii) the legal firm(s) and consulting firm(s) that have a material association with the company.
- e. is not a material supplier, service provider or customer or a lessor or lessee of the company, which may affect independence of the director.
- f. is not a substantial shareholder of the company i.e. owning two percent or more of the block of voting shares.
- g. is not less than 21 years of age.

➤ As per DPE Guidelines,

The expression "Independent Director" shall mean a part-time Director of the company who:

- (a) apart from receiving Director's remuneration, does not have any material pecuniary relationship or transaction with the company, its Directors, its senior management or its holding company, its subsidiaries and associates which may affect independence of the Director;
- (b) is not related to persons occupying management positions at the Board level or at one level below the Board;
- (c) has not been a senior executive or managerial personnel of the company in the immediately preceding three financial years;
- (d) Is not a partner or an executive, or was not a partner or an executive during the preceding three years, of any of the following:
  - i) the statutory audit firm or the internal audit firm or tax audit firm or energy audit firm or management audit firm or risk audit firm or insurance audit firm that is associated with the company, and
  - ii) the panel advocate(s) or legal firm(s) or consultant(s) and consulting firm(s) or expert(s) that have a material association with the company.
- (e) is not a material supplier, service provider or customer or a lessor or lessee of the company, which may affect independence of the director;
- (f) is not a substantial shareholder of the company i.e. owning two percent or more of the block of voting shares.

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](http://www.bhel.com)). Further, shareholders have a dedicated email-id viz. [shareholderquery@bhel.in](mailto:shareholderquery@bhel.in) to communicate with the Company. Shareholders can also raise queries, interact with Board members and provide suggestions at the General Meeting(s) of the Company.

All Directors at the time of joining the Board give a certificate stating that neither they nor their relatives have any conflict of interest with the company's business. Directors also disclose their interest in other companies, body corporates and other entities to the Board at the time of joining and also whenever there is any change in the interest. Directors abstain from any discussions in/ approval of the Board pertaining to contracts or transactions with such interested parties. Further, all Directors and Senior Management Personnel sign an affirmation to abide by the Code of Business Conduct and Ethics of BHEL and ensure high standard of conduct.

## Selection of New Director

As per Articles of Association of BHEL, the President of India through Department of Heavy Industry, Ministry of Heavy Industries & Public Enterprises, appoints the Chairman & Managing Director, Functional Directors and Part-time Official Directors on the Board of BHEL and also nominates Part-time Non-official Directors (Independent Directors) on the Board of BHEL.

The Independent Directors are selected by the Department of Heavy Industry in consultation with the Search Committee of the Department of Public Enterprises which maintains a panel of eminent personalities having wide experience in the field of Management, Finance, Engineering, Administration and Industry.

## Working of the Board

As per Articles of Association of BHEL, the President of India through Department of Heavy Industry, Ministry of Heavy Industries



& Public Enterprises, appoints the Chairman & Managing Director, Functional Directors and Part-time Official Directors on the Board of BHEL and also nominates Part-time Non-official (Independent) Directors on the Board of BHEL.

The appointment of Chairman & Managing Director and Functional Directors is on such terms and conditions, remuneration and tenure as the President of India may from time to time determine.

Two Part-time Official Directors viz. Additional Secretary/Joint Secretary, Department of Heavy Industry-Ministry of Heavy Industries & Public Enterprises and Additional Secretary & Financial Advisor, Ministry of Commerce and Industry are nominated by the Government of India on the Board of BHEL. They continue to be on the Board of BHEL at the discretion of the Government of India.

The Independent Directors are selected by the Department of Heavy Industry in consultation with the Search Committee of the Department of Public Enterprises which maintains a panel of eminent personalities having wide experience in the field of Management, Finance, Engineering, Administration and Industry.

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. Such oversight and monitoring is ensured through regular meetings of the Board of Directors which are scheduled well in advance. This also ensures that important decisions are taken and implemented in time. In Financial year 2013-14, Board met 9 times.

The Company Secretary, in consultation with the Chairman & Managing Director, sends a written notice of each Board meeting to each Director. The Board agenda is circulated to the Directors in advance. The members of the Board have access to all information of the Company and are free to recommend inclusion of any matter in agenda for discussion. In case of need, the senior management is invited to attend the Board

Meetings to provide additional inputs relating to the items being discussed and / or to give presentation to the Board. The Board meets at least once in a quarter to review the quarterly results and other items on the agenda. Additional meetings are held, when necessary.

The information under the following heads are usually presented to the Board of Directors of BHEL either as part of the agenda papers or are tabled / presented during the course of Board meeting:

- Annual operating plans and budgets and any updates.
- Capital budgets and any updates.
- Quarterly results for the company and its operating divisions or business segments.
- Minutes of meetings of Audit Committee and other Committees of the Board.
- Minutes of Board Meetings of unlisted subsidiary companies.
- Statement of all significant transactions and arrangements entered into by unlisted subsidiary companies.
- The information on recruitment and remuneration of senior officers just below the Board level.
- Details of any Joint Venture or R&D project or technical collaboration agreement requiring approval of Board of Directors.
- Significant labour problems and their proposed solutions. Any significant development in Human Resources / Industrial Relations front like signing of wage agreement, implementation of Voluntary Retirement Scheme etc.
- Sale of material, nature of investments, subsidiaries, assets, which is not in normal course of business.
- Action Taken Report on matters desired by the Board.
- Disclosure of Interest by Directors

about directorships and Committee positions occupied by them in other companies.

- Quarterly report on Compliance of various laws.
- Information relating to major legal disputes.
- Status of Arbitration cases.
- Short term Investment of surplus funds.
- Any contract(s) in which Director(s) are deemed to be interested.
- Status of shareholders' grievances on quarterly basis.
- Information/status in respect of Power & Industry Sectors and International Operations Division on quarterly basis.
- Significant Capital Investment proposals.
- Changes in significant accounting policies and practices and reasons for the same.
- Detailed presentation on performance of various units/functions.
- Any other information required to be presented to the Board either for information or approval.

In addition to the above, the Board of Directors has also constituted various statutory and technical committees such as the Audit Committee, Shareholders'/ Investors' Grievance Committee, Remuneration Committee, HR Committee, CSR & Sustainability Committee, Committee of Independent Directors and Nomination Committee to ensure in-depth analysis & review as well provide requisite guidance, advice and recommendations on important matters. The procedures for conducting meetings of these Committees are also similar to that followed for the Board of Directors.

## Ethics, transparency and Integrity

All Board members and Senior Management personnel have affirmed compliance with

BHEL's "Code of Business Conduct and Ethics" for the financial year 2013-14.

The Company is complying with the provisions of Companies Act, Listing Agreement and DPE Guidelines.

The Company believes that conducting business in a manner that complies with the Corporate Governance procedures and Code of Conduct, exemplifies each of our core values and positions us to deliver long-term returns to our shareholders, favourable outcomes to our customers, attractive opportunities to our employees and making the suppliers our partners in progress & enriching the society.

BHEL's Governance framework endeavours to transcend much beyond the regulatory and basic requirements of Corporate Governance focusing consistently towards building confidence of its various stakeholders including shareholders, customers, employees, suppliers and the society at large. The framework underlines commitment to quality of governance, transparency disclosures, consistent stakeholders' value enhancement and corporate social responsibility. Our corporate structure, business procedures and disclosure practices have attained a sound equilibrium with our Corporate Governance Policy resulting in achievement of goals as well as high level of business ethics. BHEL's Corporate Governance policy is based on the following principles:

- i) Independence and versatility of the Board
- ii) Integrity and ethical behaviour of all personnel
- iii) Recognition of obligations towards all stakeholders – shareholders, customers, employees, suppliers and the society
- iv) High degree of disclosure and transparency levels
- v) Total compliance with laws in all areas in which the company operates
- vi) Achievement of above goals with compassion for people and environment





The company has also signed an MoU with Transparency India International to adopt 'Integrity Pact' to make public procurement and contracting more transparent by binding both the parties i.e. BHEL as well as suppliers/contractors to ethical conduct. Implementation of Integrity Pact is overseen by a panel of three Independent External Monitors appointed with the approval of CVC. Under delegation of power of various functionaries, accountability is well defined. Works Policy, Purchase Policy and other policy documents facilitate transparency in our working and commitment of highest order of integrity.

Performance of the Board is judged against benchmarks set within the company as well as the Memorandum of Understanding signed with the Department of Heavy Industry. The effectiveness of the Board is seen with respect to the overall value addition by the decisions taken at the Board Meetings.

### **Mechanisms to analyse corruption and fraudulent practice risks**

- The company has a Board approved 'Code for Business Conduct & Ethics' for all Board Members and Senior Management personnel which can be viewed through the following link:  
[http://www.bhel.com/investor\\_relations/pdf/Code%20of%20Business%20Conduct%20and%20Ethics.pdf](http://www.bhel.com/investor_relations/pdf/Code%20of%20Business%20Conduct%20and%20Ethics.pdf)
- In addition, as part of BHEL's persisting endeavour to set a high standard of conduct for its employees (other than those governed by standing orders), the 'BHEL Conduct, Discipline and Appeal Rules, 1975' are in place.
- The Company is subject to RTI Act, 2005 and audit by Statutory Auditors (under section 224 of the Companies

Act, 1956), CAG audit under section 619 of the Companies Act, 1956.

- The company has also signed a MoU with Transparency International to adopt 'Integrity Pact' to make public procurement and contracting more transparent by binding both the parties to ethical conduct.
- Under delegation of power of various functionaries, accountability is well defined. Works Policy, Purchase Policy and other policy documents facilitate transparency in our working and commitment of highest order of integrity

### **Monitoring mechanisms in place to avoid incidence of corruption**

BHEL has a strong vigilance mechanism in place. The Vigilance organisation of BHEL is headed by a Chief Vigilance Officer (CVO) appointed by the Ministry. Major manufacturing Units / Power Sector Region of BHEL have a vigilance set up headed by a senior vigilance executive reporting to the CVO.

Preventive vigilance has remained the focus area of BHEL Vigilance all through the years. Training programmes are conducted to update employees about company's policies, rules and procedures and make them aware about risk prone areas.

During 2013-14, Vigilance emphasised on procurement through open tender route particularly for high value packages. Tender conditions related to rate contracts were studied and suitable terms and conditions were incorporated to thwart cartelisation by vendors. Further, quality inspections and utilization of BHEL T&Ps in sub-contracted/outsourced works were selected as focus area for enhancing the end quality of products and productivity.



Corporate Vigilance teams inspected 6 Vigilance Units of BHEL. The findings were discussed in interactive sessions with the Unit Managements.

It was impressed upon officials to focus on the aspects of estimation and price reasonability while dealing with procurement to remain competitive in the market. The interactive sessions helped BHEL officials to appreciate the role of Vigilance in promoting a strong, viable and competitive organisation.

BHEL is committed to bring transparency in day to day operations of the company by leveraging technology. The information regarding procurement related matters like status of purchase orders and Contracts, vendor registration along with their current status is hosted on the company web site.

In addition, e-tendering route is being promoted for procurement and e-payment system has been implemented to reduce vendor interface.

To create awareness about the procedures of

procurement in BHEL, to disseminate the instructions issued by Statutory Authorities and to share the case studies, quarterly e-Newsletter "DISHA" is being published. Chief Vigilance Officer also presents report on various aspects of vigilance in BHEL to the Apex body-The management Committee once in a year.

BHEL has adopted a Whistle Blower Policy in pursuance of guidelines on Corporate Governance for CPSEs issued by DPE, section 177 of Companies Act 2013 and clause 49 of listing agreement.

The policy provides for a mechanism for employees to report to the management, concerns about unethical behaviour, actual or suspected fraud, or violation of company's general guidelines on conduct or ethics. It also provides safeguards against victimization of employees who avail of the mechanism and provides for direct access to Chairman of audit committee in exceptional cases. The policy link is available at [www.bhel.com](http://www.bhel.com).



## MATERIALITY AND STAKEHOLDER ENGAGEMENT



BHEL's consolidated financial statement as provided in page 213-249 of BHEL's annual report for 2013-14 includes its subsidiary and joint venture. The list of such entities is given in the table.

However, for the purpose of preparation of Sustainability report of BHEL, the data pertaining to only BHEL has been reported and subsidiaries and joint ventures are not being considered.

As mentioned in this report, BHEL has its widespread network of 17 Manufacturing Units, 2 Repair Units, 4 Regional Offices, 8 Service Centres, 8 Overseas Offices, 6 Joint Ventures, 15 Regional marketing Centres and current project execution at more than 150 project sites across India and abroad. However, major activities of BHEL which has environmental impacts are being carried out in manufacturing units and there robust systems have been developed for data capturing and reporting.

The data on aspect **EN1: Materials** includes material use at site also. However for all other aspects, the report is limited to the units as shown in the figure reporting boundary for Environmental Indicators. At project sites, the 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.

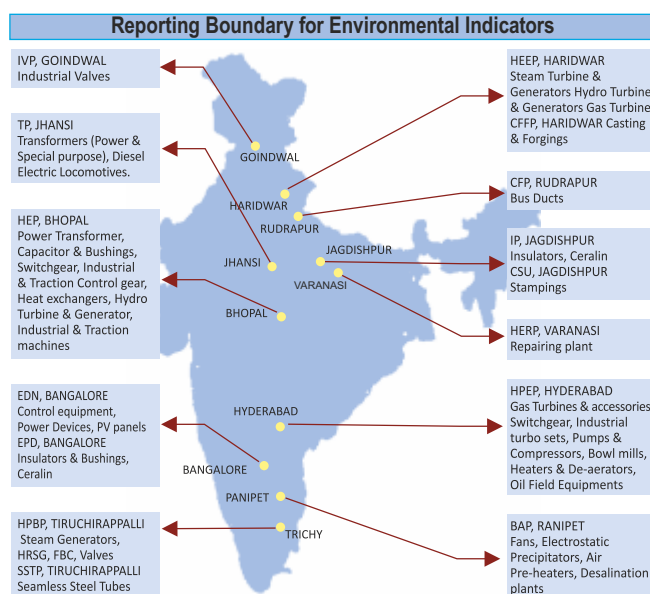
The data for the aspects other than Environment includes the data for entire BHEL setup (excluding JVs and subsidiaries).

### Subsidiary:

- ❖ BHEL Electrical Machines Limited

### Joint Venture:

- BHEL- GE Gas Turbine Services Private Limited
- Power plant Performance Improvement Ltd.
- Dada Dhuniwale Khandwa Power Ltd.
- Raichur Power Corporation Ltd.
- NTPC BHEL Power Projects Limited
- Latur Power Company Limited



## Process for defining report content and aspect boundaries

BHEL's process of materiality analysis can be visualised as a funnel in which issue identification through stakeholder engagement, sustainability context of the identified issues and prioritisation are fundamental input resulting in host of material issues as its output.

The aspects defined in GRI-G4 guidelines have been plotted on a matrix and the issues falling in the quadrant having high significance for the stakeholders as well as BHEL have been identified as key material issues for the year 2013-14 and reported in this document.

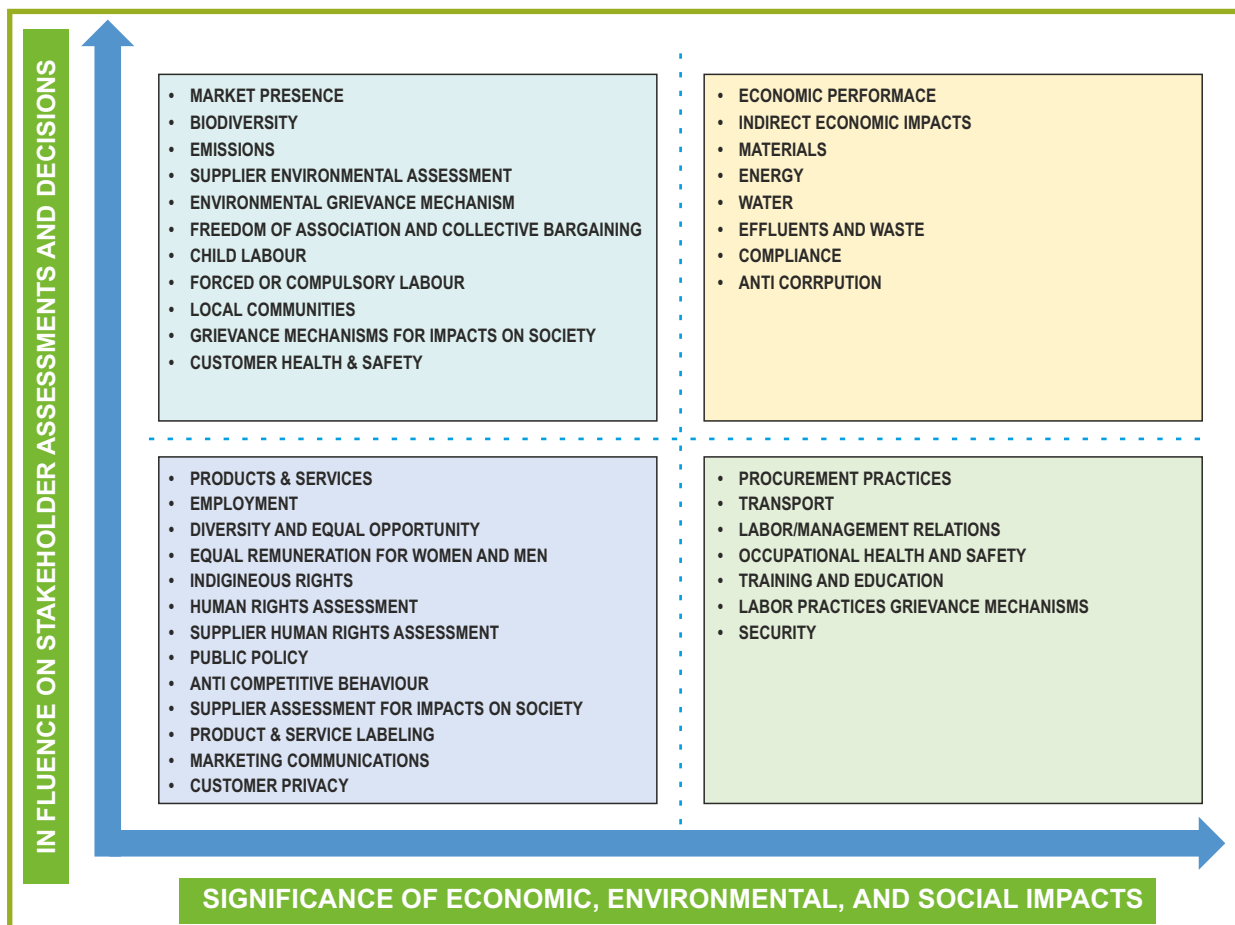
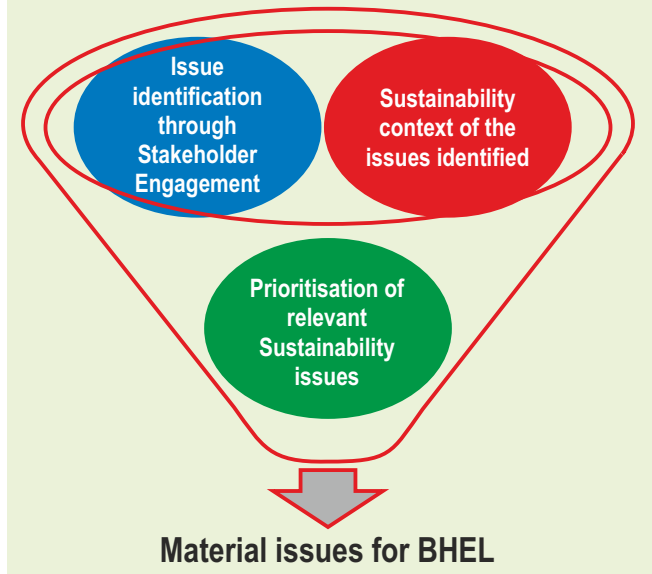
The output of the exercise for 2013-14 has resulted into identification of following material issues which are perceived to be more important to BHEL as well as its stakeholders:

### Identified Material Issues for 2013-14

- Economic Performance
- Indirect Economic Impacts
- Material
- Energy
- Water
- Effluents and wastes
- Compliance
- Anti-corruption

Regarding the boundary of the material aspects identified, the data reported for Economic performance, indirect economic impacts, material, compliance and anti-corruption is for entire BHEL. However the data reported for aspects pertaining to environment is limited to the units listed in the diagram – reporting boundary for environmental indicators. Although it is to 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 is an area which is not being tracked as of now.

### Process for defining report content and aspect boundaries



There is no significant change in our operations or supply chain from previous reporting periods and there are no changes in the scope and aspect boundary of the identified material issues.



## Stakeholder Engagement

There are multiple stakeholder groups which has been identified by BHEL. However, all the relevant stakeholders broadly fall into six categories as shown in the diagram. These are the stakeholders which either affect the business of BHEL or are themselves getting affected by the business of the organization and on this basis these stakeholders have been identified by the organization.

Activity	Methodology Followed	Result
Stakeholder identification	❖ Brainstorming session by Nodal Officers for Sustainability	Society, Employees, Shareholder, Customers, Suppliers, Government
	❖ Feedback from other stakeholders	

BHEL believes that conducting business in a manner that complies with the Corporate Governance procedures and Code of Conduct, exemplifies each of our core values and positions us to deliver long-term returns to our shareholders, favourable outcomes to our customers, attractive opportunities to our employees and making the suppliers our partners in progress, enriching the society and become an enabler for the government to meet its energy related goals.

With this identified stakeholder groups, periodic meetings are conducted and expectations of the stakeholders are discussed. These meeting are structured way of engaging stakeholder and gauge their expectations. The framework for stakeholder engagement is shown in the diagram.



### Stakeholder Engagement Framework

#### Map Stakeholders - Internal & External

**Identify the concerns - key sustainability issues through internal materiality analysis and sharing with stakeholders.**

**Establishing the linkages between identified material issues and organization's SD vision & strategy. Prioritize the issues and sub-issues.**

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.

Some of the stakeholder engagement activities undertaken in last year are given in the table below.

### Stakeholder Engagement modes and activities

Stakeholder Group	Mode of Engagement	Typical list of activities conducted in 2013-14
Customer	Customers' meet, surveys	Periodic meeting with customers by business sectors, manufacturing units/ project sites, Customer perception Survey, Discussions on requirement of the customers during execution of projects and incorporating the same wherever feasible.



<b>Suppliers</b>	Vendors Meet	Vendors' Meet, Vendors' Survey, Continuous inputs / interactions with business associates / vendors
<b>Government</b>	MoU, Reports	MoU, Environmental Statement, Parliamentary Committee meetings, Requisite compliance reports
<b>Employees</b>	In-house magazine, Message from CMD, Employee engagement survey, Joint Committee, Plant Council, Shop Council	In house magazines viz. Pratibimb, Arunima and other unit level in-house magazines, CSR meet for nodal officers, Sustainable Development Meet for Nodal officers, Employee engagement survey, Plant council & Shop Council Meetings, Training programmes
<b>Shareholder</b>	Annual Report, Press Releases	Annual General Meeting, Press release, Conference call with minority shareholders, timely communication of requisite information to shareholders & stock exchanges
<b>Society at large</b>	CSR Programme, Baseline Survey / need identification	CSR Projects, Interaction with people through site visits for CSR, Meeting with NGO's representatives

Some of the key topics and concerns which have been raised by the stakeholders during 2013-14 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.
Sub-optimal contribution of renewable energy in our operational energy mix	At-least 2% of energy is to be sourced through renewable means inside the company premise.
Increasing expectation of stakeholders living in vicinity of our units/project sites	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.
Diversification of business	Capacity expansion, product development, collaboration with stakeholders, capabilities' consolidation and gaining execution experience are being pursued in various business verticals to enhance share of Industry Segment in turnover-mix.
Sub-optimal safety performance at site	Revised Corporate HSE manual is under preparation for unification of safety practices being followed in BHEL. Safety Performance review is being done more critically in BHEL.

Indian business environment and stock market remained volatile during the year. Apprehensions were repeatedly raised about BHEL's ability to consistently reward its investors given the dwindling order book. In this backdrop, BHEL remains in touch with investors and analyst community communicating company's long-term strategic vision through face-to-face meetings, conferences calls, Investor Conferences by uploading presentations and conference call transcripts on company's website [www.bhel.com](http://www.bhel.com).

BHEL Corporate planning & Development had more than 250 face-to-face interactions with analysts, fund managers, and other investors. 'Business & Strategy Overview' of BHEL was presented & discussed in Investor Conferences.



## REPORT PROFILE

This report is the 3<sup>rd</sup> Annual Sustainability report of Bharat Heavy Electricals Limited (BHEL) and has been prepared in line with the latest version of GRI framework i.e. GRI G4 covering the activities conducted in 2013-14. Previous two reports were prepared according to GRI G3 and GRI G3.1 frameworks respectively for 2011-12 and 2012-13 respectively. The first Sustainability Report was published for the year 2011-12. Current report covers the Sustainability performance of the company for the period from April 1, 2013 to March 31, 2014 and is an attempt to give the reader a holistic view of our Sustainability Performance for 2013-14 and the areas in which further improvement is desired. Data has been provided for multiple years wherever available for comparison purpose.

It may also be noted that data for our newly established unit PPPU Thirumayam is getting compiled but to maintained comparability with the last reports, it has not been included in the present report. The data for this unit will be included once we have 3 years data for the same available with us.

For the reporting purpose, data has been captured through SAP wherever applicable. Otherwise the data have been taken from reliable sources, compiled at unit level and

sent to corporate office for preparation of report. Wherever the data is not based on measurement the same has been arrived at using appropriate estimation methodology.

All the calculations have been done as per the standard calculation methodology followed in UNFCCC protocol, Calculation tool for Direct emissions from Stationary Combustion - WRI / WBCSD GHG Protocol, CEA data for grid emission factor etc.

The content of the report has been developed on the principles of materiality, stakeholder inclusivity and responsiveness as applicable to BHEL's present sustainability context.

There has been no significant change from the previous reporting period. We strongly believe that your feedback on our report will prove to be invaluable in improving the quality of our future report. We shall be highly thankful to you if you can provide your valuable feedback on this report. Feedback can be e-mailed at [ajitshar@bhel.in](mailto:ajitshar@bhel.in)

At present the report is not being externally assured and possibility of external assurance will be explored in the future reports of BHEL as per management decision. The reporting principles and methodology are in accordance with the "Comprehensive" option of GRI G4 reporting framework.

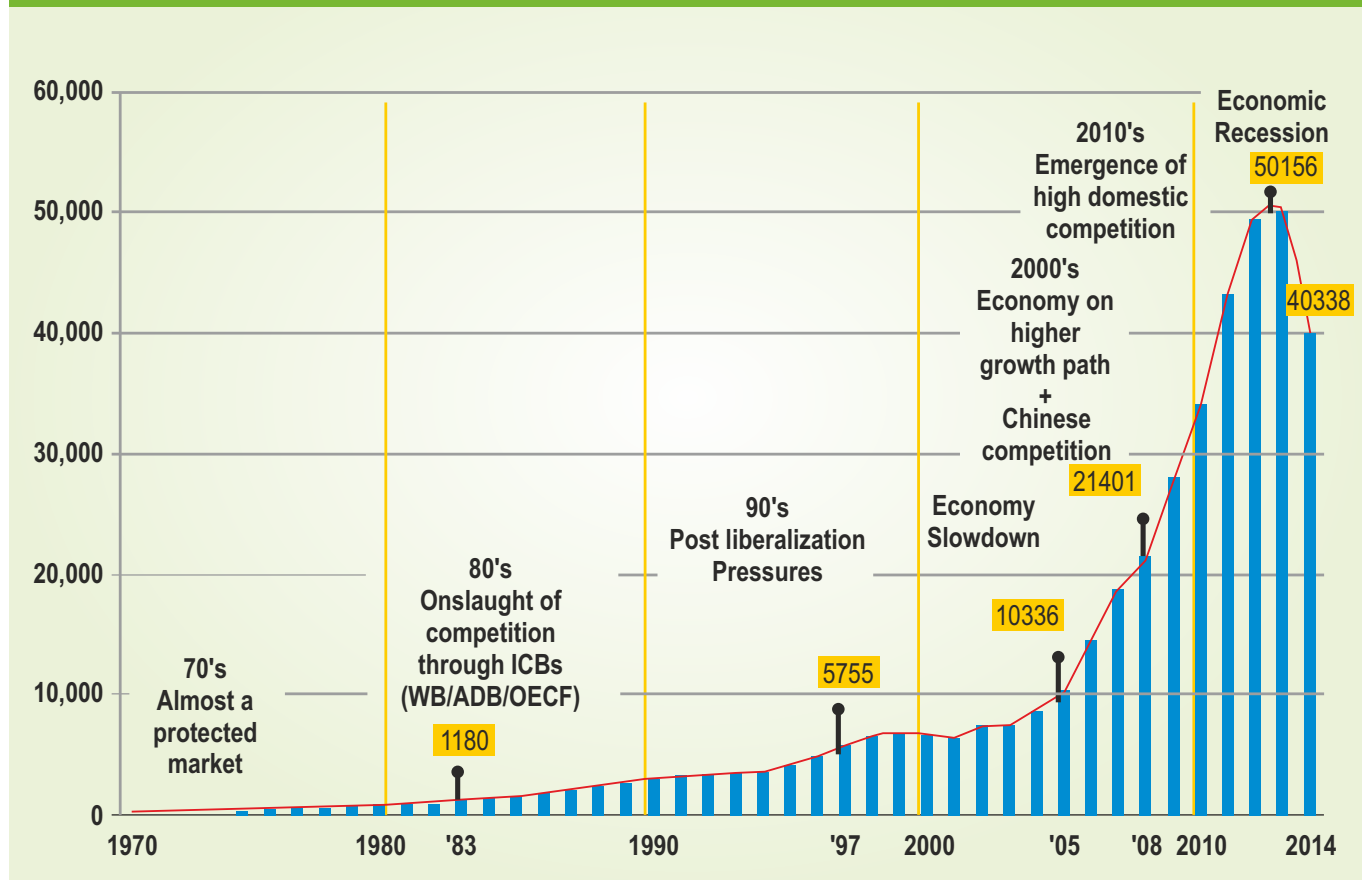


## OUR ECONOMIC PERFORMANCE

### Management Approach

The Company believes that conducting business in a manner that complies with the Corporate Governance procedures and Code of Conduct, exemplifies each of our core values and positions us to deliver long-term returns to our shareholders, favourable outcomes to our customers, attractive opportunities to our employees and making the suppliers our partners in progress & enriching the society. BHEL has exhibited sustainable growth throughout its journey so far despite various challenges being faced by the company.

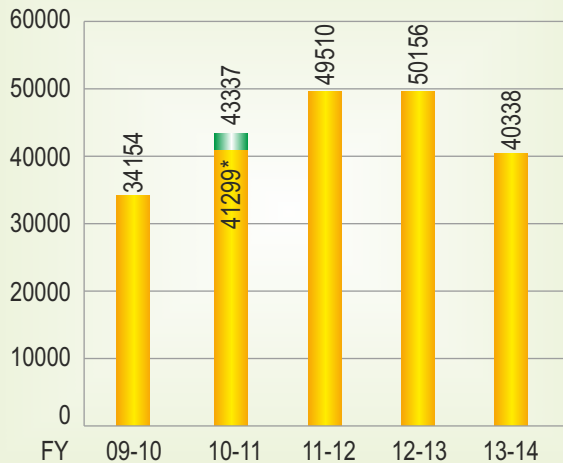
### Turnover (Rs Crore)



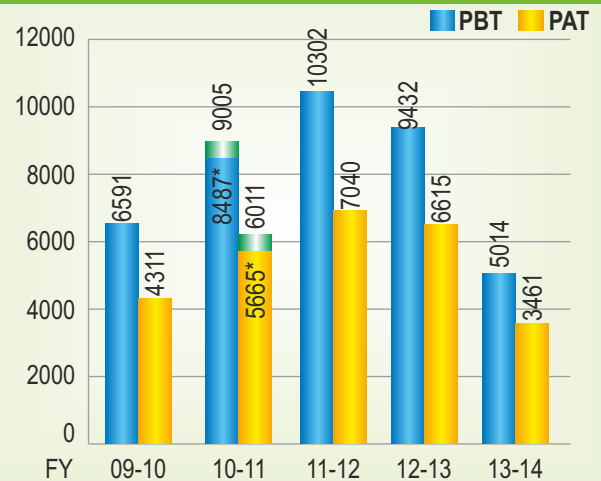


## Financial Performance Highlights

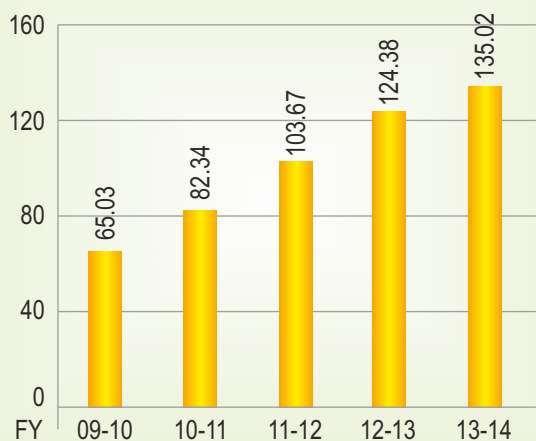
Turnover (₹ in Crore)



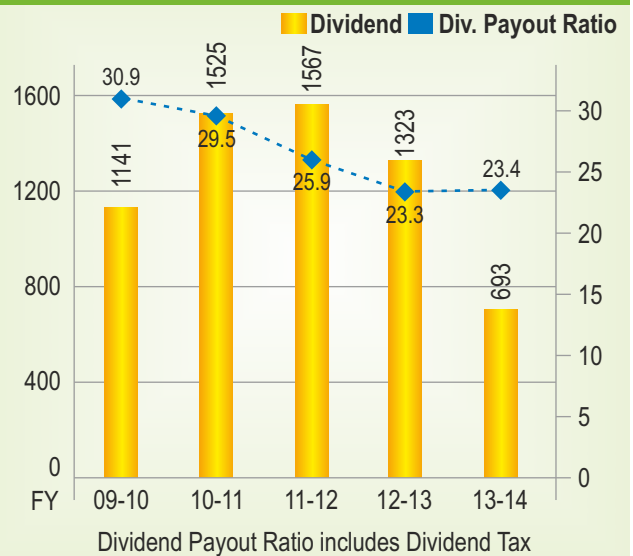
Profit Before Tax / Profit After Tax (₹ in Crore)



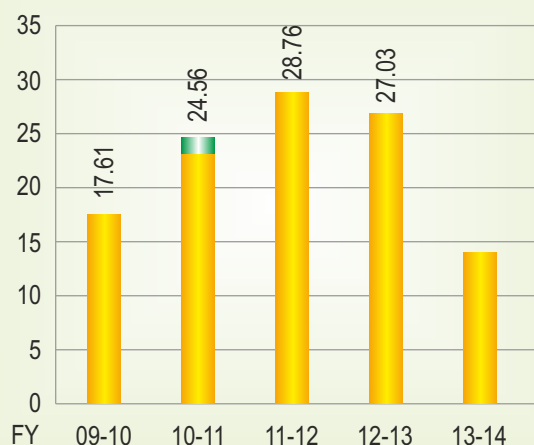
Net Worth Per Share (in ₹)



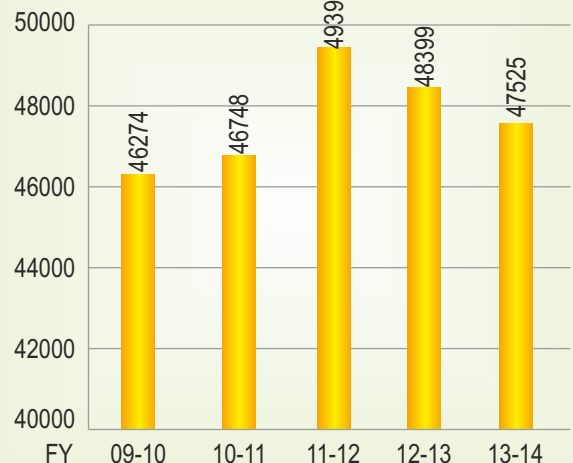
Dividend (₹ in Crore) / Dividend Payment Ratio



Earnings Per Share (in ₹)



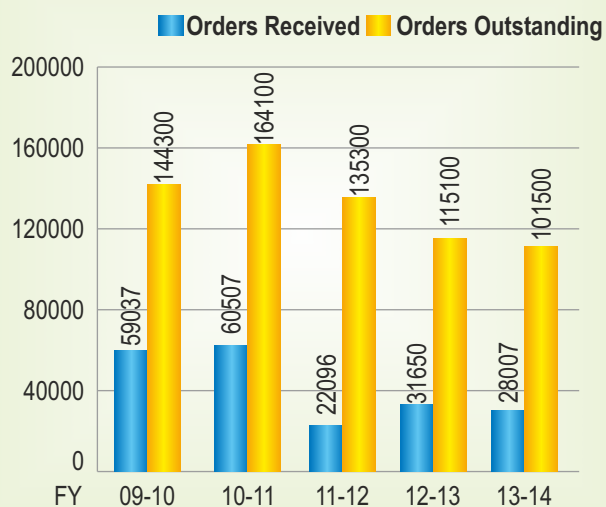
Manpower (in Nos.)



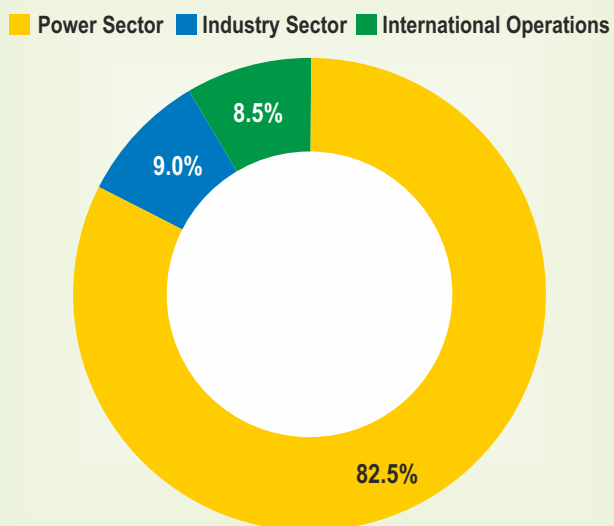
\*Excluding one-time impact of change in policy of warranty obligation for earlier years



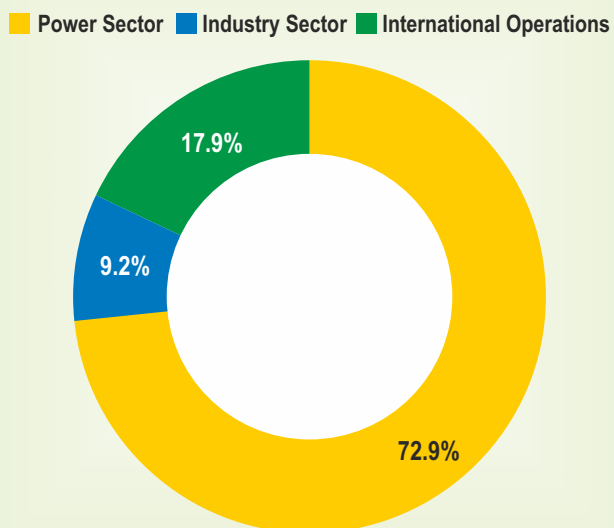
### Orders Received / Orders Outstanding (₹ in Crore)



### Sector-wise Order Book Outstanding (As at March 31, 2014)



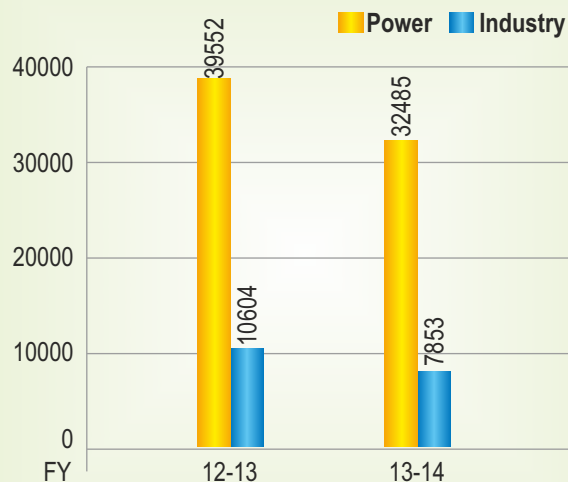
### Sector-wise Order Book 2013-14



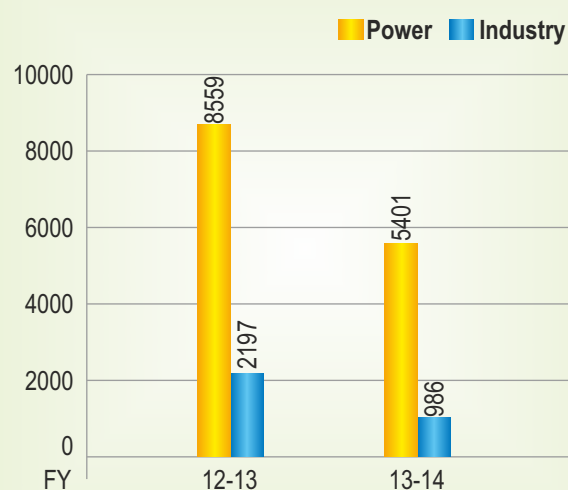
(₹ in Crore)

	2013-14	2012-13
Turnover	40,338	50,156
Profit Before Tax	5,014	9,432
Profit After Tax	3,461	6,615
Retained Earnings	2,650	5,071
Total Assets	72,791	
Net Worth	33,047	30,444
Long Term Borrowings	105	129
Debt : Equity	0.01	0.01
Per Share (in ₹)		
- Net worth	135.02	124.38
- Earnings	14.14	27.03
Employee (Nos.)	47,525	48,399

### Segment-wise Revenue (₹ in Crore)

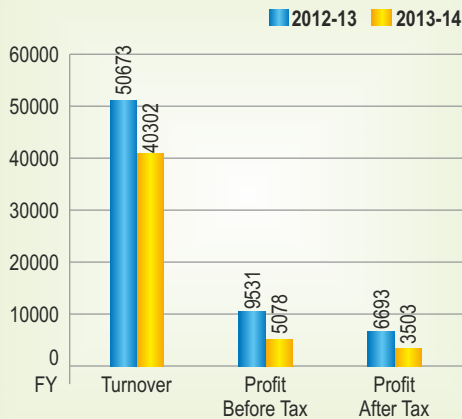


### Segment-wise Results (₹ in Crore)



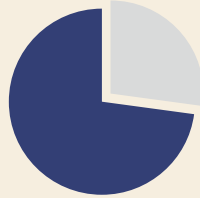


## Consolidated Financial Performance (₹ in Crore)



**13,452 MW**

Commissioned / Synchronised



Market Share

**72%** in Indian Power Sector

Innovation

**434**

Patents & copyrights filed



**47,525**

No. of Employees

**5.02**

Training Man-days per Employee



CSR & SD Expenditure

**1.64%**

of Profit After Tax (2012-13)

**12,995**

Vocational Trainees

**23,142**

Act-Apprentices Trained



**18.9%**

Procurement from Micro & Small Enterprises

## Climate Change - risk and opportunity

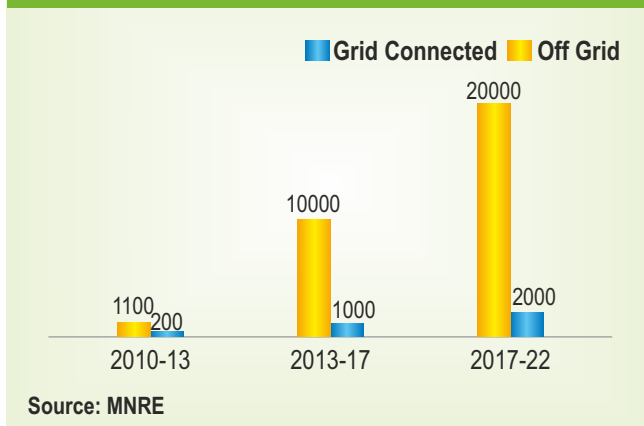
National Action Plan on Climate Change (NAPCC) of India unveiled in 2008 envisages meeting 15% of country's power requirements from renewable sources by 2020. Jawaharlal Nehru National Solar Mission (JNNSM), one of the eight key missions identified under NAPCC has set an ambitious target of adding 20 GW of grid connected & 2 GW of off grid capacity by 2022 in three phases by creating favourable conditions for solar manufacturing capability. Mission also aims at reducing the cost of solar power generation in the country through long term policy, large scale deployment goals, aggressive R&D and domestic production of critical raw materials, components and products.

Ministry of New and Renewable Energy, GOI has also been working on a scale-up plan of solar power generation of 1,00,000 MW to be realized by 2030. This plan is against 20,000 MW capacity originally planned under JNNSM, which was to be realized by 2021-22. Additionally, opportunities in Solar Thermal sector is also expected to pick up in 2014-15.

The cumulative PV installations have grown from 38 MW in 2010 to about 2640 MW in 2014. The EPC price for setting up of Solar PV plant has seen a decline due to competition and fall in prices of Solar PV module & BOS items, leading to drop in power tariff. Also, solar energy is expected to reach grid parity in next 3-4 years. Commissioning schedules have shortened from earlier 12 months to 6 months with requirement of long term comprehensive O&M of 10 to 25 years.

In the manufacturing sector the capacity utilization of solar PV cells and modules was low due to imports clubbed with low cost financing. However it is expected to improve

National Solar Mission Cumulative Target-(MW)  
SPV Market to Grow at 35-40%



with some of the large manufacturers gearing up to meet the DCR requirement as announced by MNRE.

Solar thermal sector failed to take off in a large way due to non-availability of accurate DNI data, higher land requirement, and higher capital & operational expenditure. So far only 50 MW out of 470 MW projects of JNNSM Phase-I have been commissioned. Directions for this sector are expected to be set during implementation of Phase-II of JNNSM.

BHEL is ramping up PV Cell and module production capacity to address the domestic market demand and supply to Ultra Mega Solar Power Projects. Key strategy adopted by the company includes:

- Proposal for establishment of 480 MW green field solar manufacturing facilities for wafer, cell and module
- Continuous improvement of Cell and Module efficiency through in-house R&D efforts
- MoU signed among BHEL, SECI, SSL, POWERGRID, SJVN and REIL for formation of Joint Venture Company for setting up of 4,000 MW Ultra Mega Solar Power Project at Sambhar (Rajasthan)
- MoU with Abengoa, Spain for joint EPC bidding for solar thermal projects



## Value addition statement

The statement for value addition is provided in the table below. BHEL's Profit after tax (PAT) for the year 2013-14 was ₹ 3460.78 Crore.

Value Addition Statement						(₹ in Crore)
Description	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09
<b>A. Generation of Value Addition</b>						
Value of Production (less excise duty)	37073	47219	47815	41527	33598	27351
Less - Direct Material, Power & Fuel and Payments to Contractors	22027	27759	28717	23051	20427	17458
Value Added	15046	19460	19098	18476	13171	9894
Less - Other Operating Exp. (Net of income )	2982	3196	2479	3461	845	567
Net Value Addition	12064	16264	16619	15015	12326	9327
% to value of production	32.54%	34.44%	34.76%	36.16%	36.69%	34.10%
<b>B. Application of Value Addition</b>						
Employees payments	5934	5753	5466	5410	5243	4113
% to net value addition	49.19%	35.37%	32.89%	36.03%	42.54%	44.10%
Depreciation	983	953	800	544	458	334
% to net value addition	8.15%	5.86%	4.81%	3.62%	3.72%	3.58%
Finance charges:						
- Interest on borrowings	133	125	51	55	34	31
% to net value addition	1.10%	0.77%	0.31%	0.36%	0.27%	0.33%
Tax Provision (Income Tax., Def. tax, FBT & Prior Period)	1553	2818	3262	2994	2280	1711
% to net value addition	12.88%	17.32%	19.63%	19.94%	18.50%	18.34%
Dividend ( incl. dividend tax)	811	1544	1821	1775	1332	974
% to net value addition	6.71%	9.49%	10.95%	11.82%	10.81%	10.43%
Retained Profit	2650	5071	5219	4237	2979	2164
% to net value addition	21.97%	31.18%	31.41%	28.22%	24.70%	23.21%

For coverage of organization's defined benefit plan obligations, reader may please refer to BHEL's annual report 2013-14, page 161-165. During the reporting period no significant financial assistance has been received from the government of India.

As per our recruitment policy, generally local hiring is not done in executive cadre. The wages of all our executives and supervisors are fixed as per our remuneration policy at all levels. The entry level wages are much higher than the minimum wages at all our locations of work and are uniform across the organization.



## Indirect economic impact on society

Our manufacturing units were established long time back and were set up at remote location which has grown tremendously with time bringing prosperity to local community as well in the vicinity of our operation due to indirect economic activities spurred by our presence.

BHEL has put in place a CSR Policy and its Mission statement on CSR & Sustainability is “To be a committed corporate citizen, alive towards its Corporate Social Responsibility”. BHEL has a well-structured CSR programme towards inclusive growth and equitable development.

The major focus of CSR is inclusive growth aimed at capacity building, empowerment of communities, environment protection and development of backward regions and upliftment of the marginalised & under-privileged sections of the society. Company has supported various social initiatives across the country by undertaking projects in diversified areas like Community Development, Health & Hygiene, Education, Environment Protection, Disaster Management, and Talent Upgradation/ Skill Development.

BHEL undertakes CSR initiatives for implementation through various NGOs/ Trusts/ Social Welfare Societies engaged in social activities throughout the country.

The company endeavours to bring about change in the lives of communities existing around its establishments so that people

inhabiting these communities may exercise control over the conditions that impact their lives. Towards various CSR and sustainability initiatives, a total amount of ₹ 108.60 Crore has been spent in 2013-14. The details are given in the chapter “Societal Performance” in this report.

It is the policy of the company to help the Government in achieving its objectives in respect of the socio-economic status of those belonging to weaker sections of the society. In order that this objective is realized, the Company adheres to and follows the Presidential/ Govt. Directives/ Act concerning reservation of vacancies and concessions allowed to candidates belonging to Scheduled Caste, Scheduled Tribes, Ex-Serviceman, Physically Challenged, Minority Communities etc.

## Supporting marginal supply chain partners

BHEL has pioneered entrepreneurship development in and around its manufacturing units by providing regular support to SMEs through knowledge sharing, training and development and resource mobilization etc. During the FY13-14 BHEL has procured about 18% of its total procurement from Micro and Small Enterprises in compliance to Public Procurement Policy-2012 for MSEs of the GOI. Towards capacity and capability building, BHEL units regularly organize Vendor Meets specifically for MSEs (including local suppliers) which also provide opportunities for open communication for mutual benefits and support.



## ENVIRONMENTAL PERFORMANCE



### Management Approach - Sustainability

For BHEL, sustainability is about achieving prosperity by balancing social equity and staying within the tolerable limits / carrying capacity of the environment. At BHEL, we believe in doing business in a sustainable manner that extends across the spheres of our Business strategy, environmental action, social support and governance. The relationship between the company, its products, its employees, its customers and the society is - to use the unavoidable metaphor - like a river, the deeper it gets the less noise it makes. It has been just a natural extension of the way BHEL saw itself and its responsibility. For almost fifty years of its existence, company has been leveraging technology and innovation for providing products, systems and services to its customers and enable them to use resources with better efficiency and productivity which is also evident from its Mission Statement – “Providing Sustainable Business solutions in the fields of Energy, Industry & Infrastructure”.

Structured approach towards sustainability is in itself a value proposition which adds to the triple bottom line. This helps us in reducing - material, water & energy consumption, emission and waste generation; providing more acceptability for our operations in the society; and making our products & services more sustainable and profitable. It also enables us to contribute towards equitable development as a central theme so that the benefits of economic and business growth can reach to the maximum populace. As always, our customers join us, challenge us, engage with us, and help us do it better. For BHEL, sustainability is an entrenched part of

its glorious history which has enabled us to consistently make profits since 1971-72.

### Governance for sustainability

BHEL believes that while Governance for sustainability, stakeholder engagement and disclosure on sustainability issues forms the bedrock for embedding sustainability within the corporate DNA, the organisational performance on Environmental and Social issues linked with its business is the ultimate measure for sustainability.

To ensure this, BHEL follows the guidelines on Corporate Social Responsibility (CSR) and Sustainability issued by Department of Public Enterprises under Ministry of Heavy Industries and Public Enterprises for Central Public Sector Enterprises.

There is a three-tier committee structure in the Company consisting of a Sub-Committee, Level-1 Committee and a Board Level Committee (BLC) for Corporate Social Responsibility & Sustainable Development. The above three Committees are involved in the process of undertaking, screening, review, recommendation and approval of CSR & SD projects undertaken by BHEL. The annual budget for CSR & SD is approved by Board of Directors of BHEL.

During 2013-14, BHEL spent 1.64% of PAT of the year 2012-13 towards CSR & Sustainability activities.

### Sustainability Framework

Any successful initiative requires being loaded with enabling structures right from the beginning. For sustainable development, a guiding force has also been created in the form of a ‘Sustainable Development Policy’ keeping in view the scale and nature of activities, products & services.

### Sustainable Development Policy

**We at BHEL offer products, systems and services designed to benefit the society.**

**We are committed to undertaking practices that meet the economic, ecological and social responsibility tenets of Sustainable Development.**

**We will work with all our stakeholders to ensure continuous improvement in the Sustainable Development of our operations within the ambit of the guidelines issued by Government of India.**

The policy is further ingrained and reflected in the strategy of the company through its Strategic Plan 2012-17. The focus areas have been identified for ensuring sustainable Development in BHEL through its products and services as well as in-house activities.

Key projects & initiatives are undertaken in the areas of Renewable energy generation through Solar Power Plants, energy conservation through installation of turbo-ventilators, tree plantation, water

conservation, energy efficiency, workplace environment improvement by installing Fumes Extraction Systems, Noise Level Reduction Systems, Resource Conservation Systems, and Utilization of Non-Conventional Energy Sources.

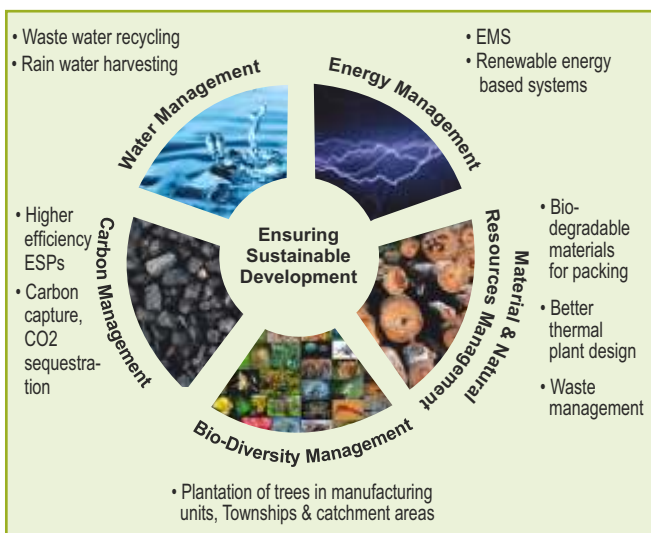
Key material issues pertaining to environmental indicators as identified through stakeholder engagement for 2013-14 are material, energy, water, effluents & wastes and compliance. The data pertaining to these identified material issues are provided in the following sections.

## Responsible natural resource consumption

BHEL stresses upon lesser & effective utilization of various natural resources used in providing diverse range of quality products and services to its customers. That is why conservation of resources figures prominently in our HSE policy which is further cascaded to the HSE policy of individual entities of BHEL.

BHEL is also implementing e-procurement in phased manner as business improvement and sustainable business practice. Company has an institutionalised mechanism to recycle products and wastes in-house to the extent feasible. For example, each MT of the molten steel produced at our CFFP unit contains 54% of the recycled scrap (of CFFP) and 45% of MS Scrap (from other BHEL units), thus making it an almost a 100% recycled product. In 2013-14, total steel scrap processed in Steel Melting Shop of CFFP stood at 28635 MT.

The table provides us the data about resource consumption by entire organization in last 4 financial years.





(Value in ₹ Crore)									
	Year->	2013-14		2012-13		2011-12		2010-11	
Group of Material	Units	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Ferrous	MT	252360		359639		647585		630011	
	Meters	5894301		12455008		16084481		13749271	
	Nos.	2744341		4484045		5839126		5184210	
	Sq.M	201723		16181		50035		958	
	Kg.	36344557		65601635		64246360		67442605	
	Others	680		461		143		93	
			2522.14		4517.67		5774.15		5017.28
Non- ferrous material	MT	13253		10757		6101		23782	
	Meters	1316512		2628311		3050477		1757921	
	Nos.	195572		338013		211852		274269	
	Sq.M	327		4285		96		242	
	Kg.	5749753		7896378		6967175		8015569	
	RL	14680		23838		26960		27781	
	Others	29781		34565		444		688	
			425.72		597.11		554.30		497.14
Insulating Material	Meters	39478186		55491713		79130216		68635813	
	MT	14031		23715		33058		76561	
	Nos.	208777		898553		469400		730866	
	Sq.M	3681993		2749575		2024396		1653750	
	Kg	674542		711885		1242793		987949	
	LT	6729480		5410250		5268930		7290736	
	RL	80972		235629		135391		216335	
	M2	163327		190245		171330		113102	
	KL	6748		3493		7460			
	ST	112		237		509		411	
	Others	7660		112034		31596		41404	
			277.08		305.72		280.41		227.51
Insulated cables and Magnet wires	Meters	6015498		2777834		3762371		2786052	
	Nos.	129112		459681		153753		175718	
	Kg	8163		12504		6149		9661	
	Others	4	86.27		45.62		60.09		41.02
Components			8967.26		12635.20		10739.08		10504.74
Others			4859.04		4942.52		7141.32		3129.90
Total Cost of consumption of raw materials & components (₹ Crore) [MC]	17137.51		23043.84		24549.35		19417.59		
Gross Turnover [GTO]	40338		50156		49510		41299		



The cost of raw materials and components as a percentage of Gross Turnover is shown in the figure below.



As can be seen from the figure, cost of material and components ranges between 42% - 50 % of the gross turn over in the last 4 years. Also due to variation in our products and services and consequently varied materials inputs across the organization, measurement of materials consumption in terms of weight or volume of raw materials consumed in physical terms as per GRI guidelines could not be established. Hence the actual trend of material consumption could not be established at present in physical terms.

Some of the measures adopted in BHEL to minimize waste (Scrap) generation at the source itself are listed below:

- Off-cuts of size > 1 square meter generated after nesting & cutting are preserved and reused to cut smaller jobs, strong backs lifting lugs & tackles etc.
- Computerized nesting plan of each plate is done to adjust maximum number of jobs in a plate

These small steps help us in reducing use of virgin material and consequently reducing the environmental footprint of BHEL. Further on aggregate basis, approx. 3-5% of materials used at BHEL are recycled input material on account of use of ferrous scrap in our units for making castings and forgings, etc.

## Energy

India continues to experience shortages in energy with total deficit of 8.7% and peak

deficit of 9.0% during 2012-13. The persistent shortages of electricity, both for peak power and for energy makes it imperative for the industries to utilise the energy in most judicious fashion. BHEL being a major player in power plant equipment is all the more sensitive towards this fact and makes a conscious effort towards minimization of use of non-renewable energy resource and maximization of use of renewable energy resources and moving towards sustainable energy mix in its operations.

Energy management in BHEL is guided by the corporate policy on Energy Management as provided in the following figure.

### ENERGY MANAGEMENT POLICY

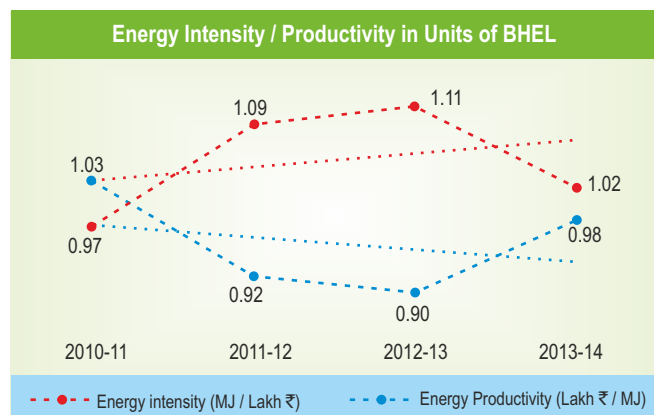
BHEL is committed to continuously enhance energy efficiency in all its activities, products and services through state-of-the-art energy efficient, eco-friendly technologies and leverage energy efficiency in its operations by adopting energy conservation techniques with the participation of all employees.

The total energy consumption by primary energy source across all the units of BHEL is shown in the figure.

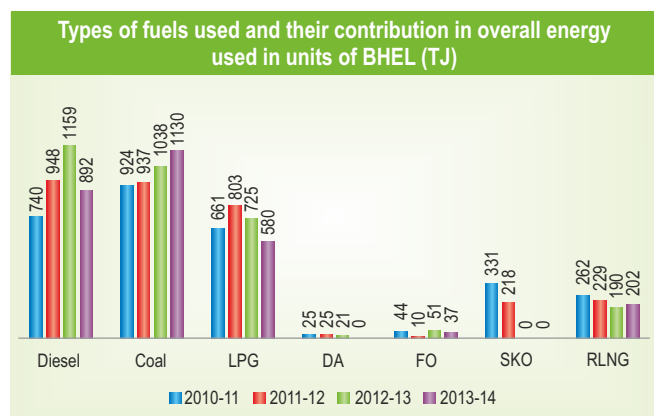
Total Direct & Indirect energy consumption in BHEL units in TJ				
Description	Energy Consumed in TJ (2013-14)	Energy Consumed in TJ (2012-13)	Energy Consumed in TJ (2011-12)	Energy Consumed in TJ (2010-11)
<b>Direct Energy</b>				
Primary Energy Fuels Consumed (Diesel, Coal, LPG, Kerosene etc.)	2840.26	3183.66	3169	2986.48
Primary Energy Produced (Through Solar Energy generation)	3.375	0.00	0.11	0.21
<b>Indirect Energy</b>				
Electricity Consumed	1116.76	1330.80	1372.49	1255.80
<b>Total (TJ)</b>	<b>3960</b>	<b>4514</b>	<b>4542</b>	<b>4243</b>
<b>Gross Turnover (₹ Crore)</b>	<b>40338</b>	<b>50156</b>	<b>49510</b>	<b>41299</b>



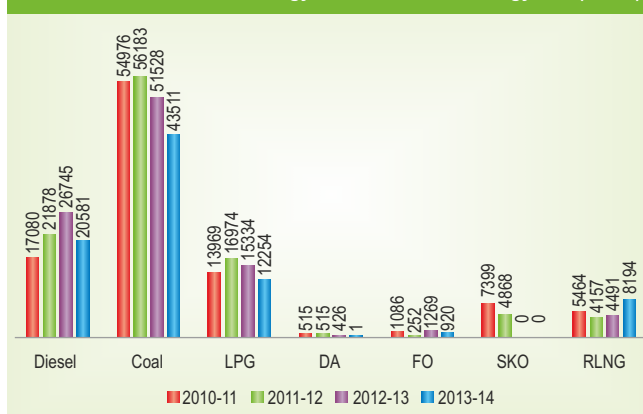
Figure shows the data for energy intensity (Energy consumed in Mega Joules per Lakh ₹ of Gross Turn over) and energy productivity (Gross turn over achieved in Lakh ₹ per Mega joules of energy consumed) in the units of BHEL under the reporting boundary. It shows that during the last four years energy intensity varied from 0.90 to 1.03 and energy productivity varied from 0.97 to 1.11. Although, a definite trend can't be observed from this data, it can be inferred that energy intensity is going down and energy productivity is going up except for the year 2013-14 when the turnover was low due to adverse market conditions.



The fuels used at our units are of varied types like diesel, coal, LPG, dissolved acetylene, Furnace oil, SKO, RLNG etc. The contribution of various fuels in terms of their overall calorific value wise contribution in the energy used is shown in the figure. BHEL is moving towards more and more use of cleaner fuels like Natural Gas at its CFFP Haridwar unit and LPG at Hyderabad unit.



Construction of various energy sources in total energy mix (in MT)



Further on tonnage basis, it can be seen that use of fuels like coal, diesel etc. is going down which will lead to lesser involvement of transportation resulting in savings in indirect energy uses for transportation of fuels.

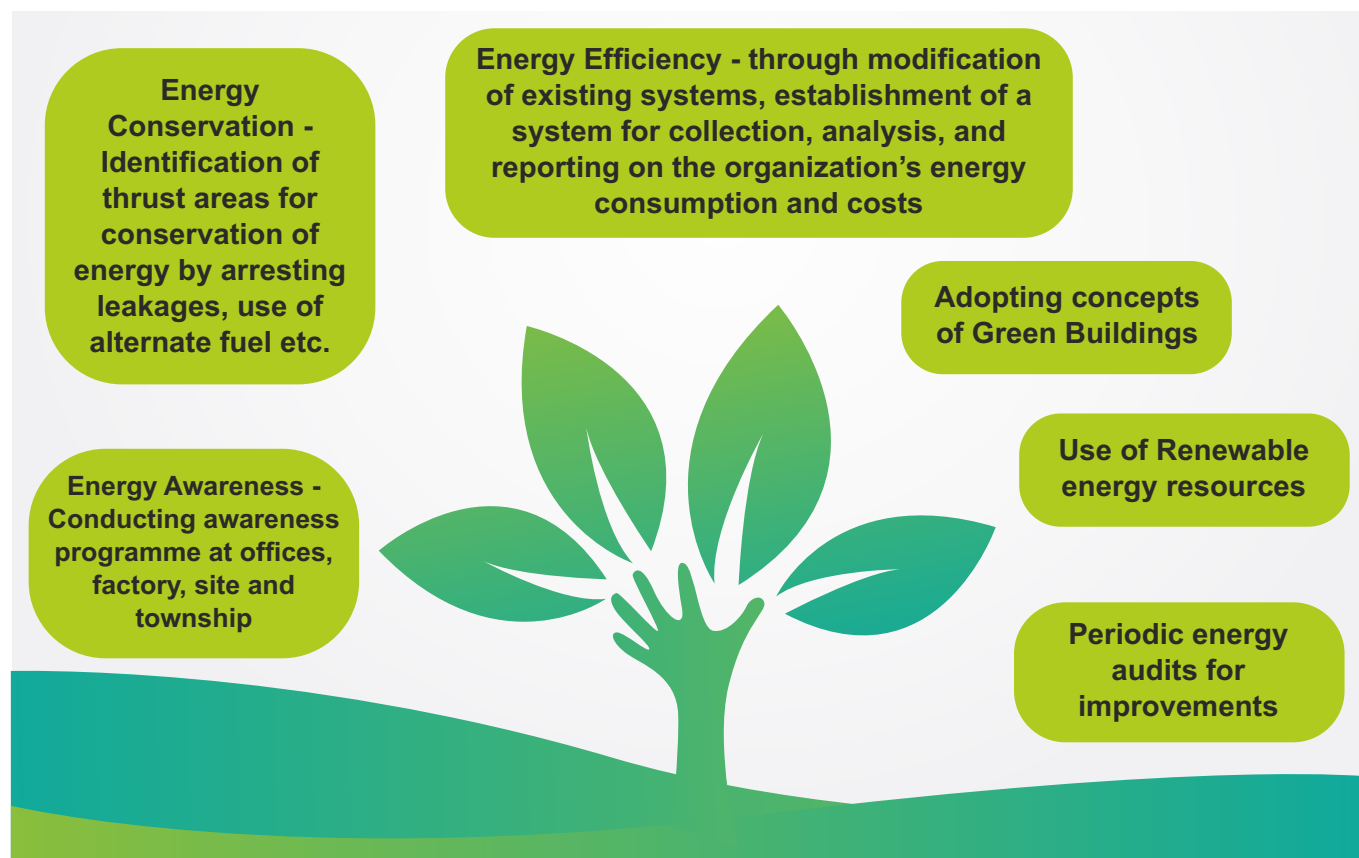
Also use of solar energy at our units have gone up on account of generation of solar energy through roof top and grid interactive systems. It is likely to go up as a 5 MW<sub>p</sub> Grid Interactive Solar power Plant has already been constructed and made fully functional during 2013-14. It will help in meeting almost all the demand of our BAP Ranipet unit.



RLNG strainer system at CFFP Haridwar

## Energy Efficiency / conservation efforts at our units

Energy efficiency and energy conservation efforts are given major thrust in the management programme of BHEL. At every unit a nodal person is identified as energy coordinator who along with the team spearheads the energy conservation efforts at the workplace. Thrust on energy conservation and efficiency is also identified as strategic business need. The focus on energy efficiency / conservation efforts is maintained through the following activities:



Some of the recent initiatives taken in Energy management across BHEL are:

✓	Installation of Grid Interactive Solar Power Plant of 5 MWp capacity at BAP Ranipet
✓	Installation of more than 1400 turbo-ventilators as part of energy conservation
✓	Thrust areas in BHEL pertaining to generation/ use of Renewable Energy are: <ul style="list-style-type: none"> <li>▪ Installation of Roof Top Solar PV Systems</li> <li>▪ Installation of Solar Water Heating Systems</li> <li>▪ Installation of Grid interactive SPV Power Plant (sub MW and MW scale)</li> <li>▪ Installation of Solar Street light</li> </ul>
✓	Load planning for reduction in maximum demand of power
✓	Installation of automatic power factor controller for inductive loads
✓	Avoiding idle running of equipment/ machine
✓	Optimum utilization of furnaces
✓	Arresting leakage in compressed air, steam piping and electrical system
✓	Use of alternate fuel
✓	Providing variable speed drives for motors on machines
✓	Providing power savers to lighting feeders
✓	Installation of Energy Management System



List of major projects taken in the areas of energy efficiency / conservation during the reporting period is given in the figure below.

## Major Energy Efficiency / conservation Projects undertaken in BHEL units during 2013-14

Unit	SI No	Project Name
Trichy	1	Retrofitting of Exhaust Blowers / Fresh Air Blowers System in Building. 1 - 40 Nos.
	2	Installation of Energy Savers in Lighting Distribution Boards (10 nos.) in Unit II.
	3	Introduction of Energy Monitoring System for 250 Numbers of High Intensive Machines / Utilities.
	4	2 no's of APFC panel 400KVAR, 415V with 7% detuned reactor including E&C for PG Plant Sub-Station.
	5	Replacing with 2 no's of APFC panel 300KVAR, 415V with 7% detuned reactor including E&C for Unit II Substation 4 & 5.
	6	Introduction of 9 Nos. APFC (Automatic Power Factor Control) Panels in Bldg 79, R&D, RPS & 53 Bldg Sub Stations.
	7	Introduction of APFC Panel for power factor improvement - 20 Torch & System Bender KKK.
	8	Introduction of VFD for FD fan Blower in Continuous discharge Furnace & High Temperature Furnaces.
EPD Bangalore	9	Energy efficient lighting (LED, T5 fitting, metal halide) for street lights, offices, shops
	10	Usage of VFDs for Kiln Motors
	11	Improvement of Air circulation using Turbo ventilators (450 nos.) in shop floor
	12	Usage of energy efficient motors for Tunnel Dryers, Injection Moulding machine
IVP Goindwal	13	Installation of 327 nos. of Wind Air Ventilators by replacing 40 nos. of 2 HP Exhaust Fans
CFFP Haridwar	14	Flow-meters installed in each equipment for measurement of Energy Consumption
	15	Automatic Air Gas Ratio Regulation for complete combustion
Hyderabad	16	Evaporative cooling system for 51-Shop Canteen
	17	Installation of VFD for LT Motion of EOT Crane - 1 No.
	18	Installation of welding energy savers for welding rectifier at 02- Block (6 nos.)
Jhansi	19	Installation of VFD in 1000 CFM compressor
	20	Two nos. Screw compressor

Some of the pictures of the energy efficiency /conservation projects are shown in the figures below.



VFD Panels for 5KW, 45 KW and 15 KW installed at Trichy



Installation of turbo ventilator at EPD Bangalore (450 nos.)



Installation of turbo ventilator at IVP Goindwal (327 Nos.) nos.) lore





Installation of flow meter on furnace in CFFP Haridwar



VFD in 1000 CFM Compressor at TP Jhansi



548 CFM Screw compressor at TP Jhansi



Energy Management System server installed at Trichy



400kVAR & 300kVAR APFC Panels installation at Trichy



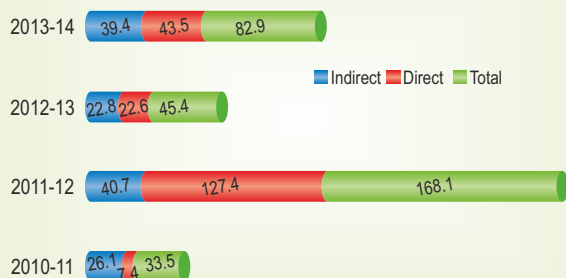
Lighting energy saver installation at Trichy



22 KW VFD Panel at Trichy

Due to various energy efficiency and conservation efforts taken up at our units, on an average 82.5 Tera joules (TJ) of energy use per annum was avoided in the last four years. It comprises of average 32 TJ (equivalent to nearly 36 million units of electricity use avoided) per annum during last 4 years. It shows the efforts being put in by the units to introduce more energy efficient technologies and modifications / alterations in fuel used / processes to save fuel and contributes towards sustainable development.

## Energy usages avoided in Tera Joules due to ENCON efforts at BHEL



## Green Energy Generation

BAP Ranipet unit is the first unit to install a 5 MWp capacity grid interactive solar power plant. Salient features of the project is given in figures below.

### Salient features of BAP Ranipet 5 MW<sub>p</sub> plant:

- Generation capacity of around 25000 Units per day, 7.2 Million unit a year.
- Power generated will meet the entire factory power requirement which is having average per day requirement of 20000 to 22000 units.
- Reducing Carbon Emission by producing Green Energy.
- Erection and commissioning complying Statutory requirements completed in 2013-14 itself.
- Major materials supply by EDN Bangalore

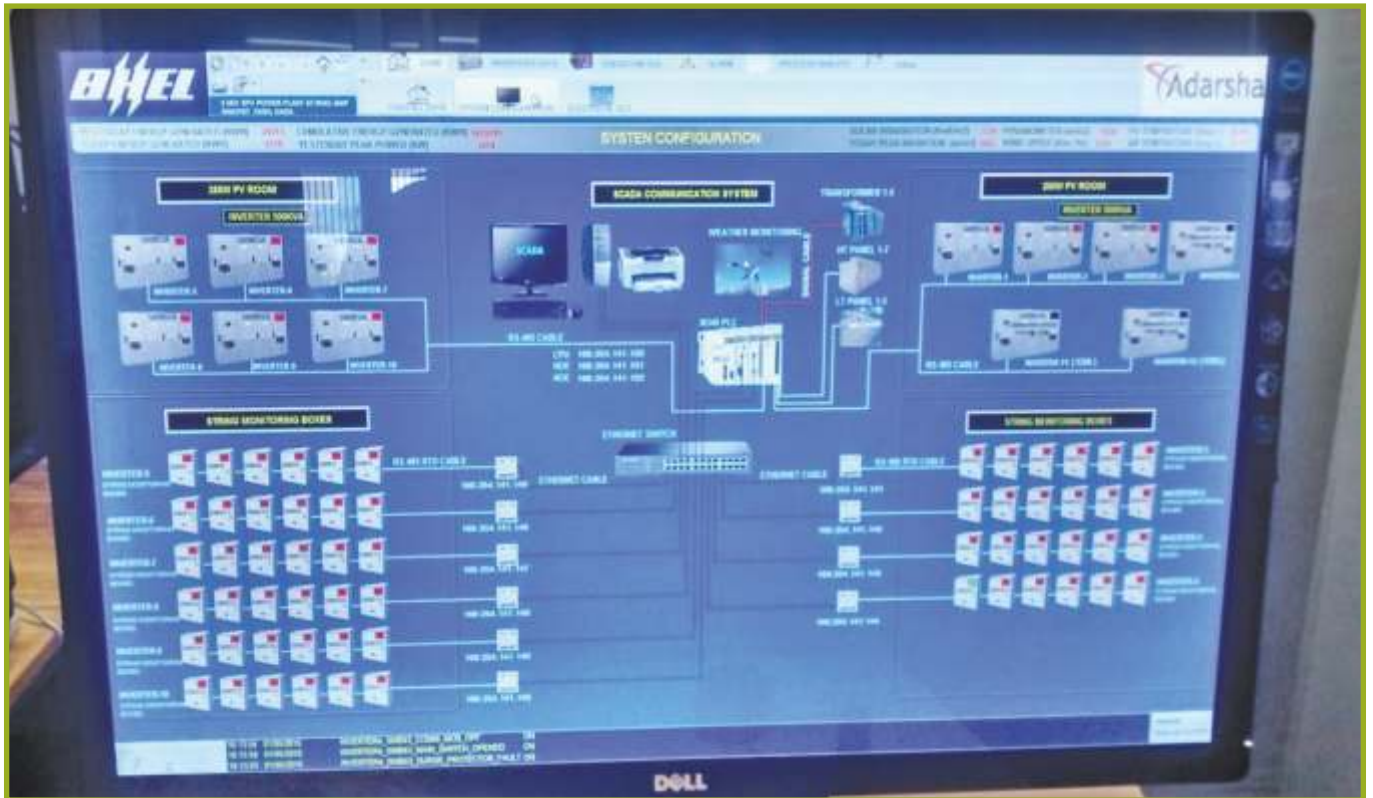
### Technical features of BAP Ranipet 5 MW<sub>p</sub> plant:

- Out of the 5 MW commissioned, 3 MW panels are of fixed type.
- The 4<sup>th</sup> MW panels are of “Seasonal Tilt Type”. These panels can be tilted based on the inclination of sun’s rays during various seasons, to get maximum generation.
- The 5<sup>th</sup> MW panels are equipped with “Single Axis Tracker”, which automatically position themselves tracking the position of Sun.
- This 5 MW<sub>p</sub> SPV plant uses in-house developed products of our sister unit, EDN Bangalore like PV modules of higher rating, SCADA, Module Cleaning system, inverters & SMU.



Bird's Eye View of 5MW Solar Power plant of BAP, BHEL, Ranipet





Solar Plant Configuration in the SCADA monitor at BAP Ranipet



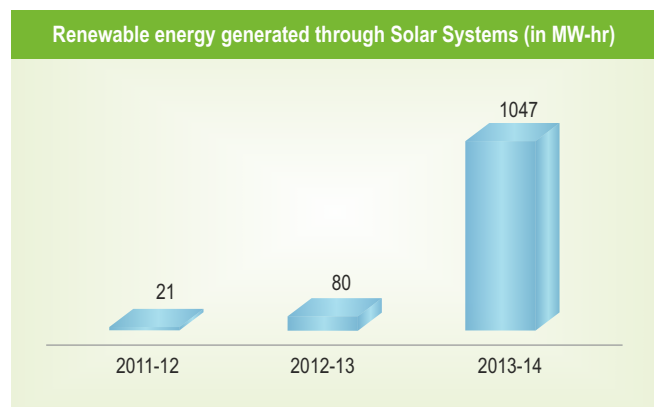
5MW SPV – TNEB 11 KV GRID



5MW SPV – Control Room –Power conditioning units



The 5 MW<sub>p</sub> plant installed during March 2014 has already generated 4.68 Lakh unit of green electricity in the reporting period. In addition, at EDN Bangalore 30 nos. of Solar PV Modules were retrofitted to existing street lights having electricity board supply. At our Trichy unit, installation of 2 nos of 500 litres/Hr stand-alone Solar Water Heater system for Main Hospital was completed. More such projects have been planned for execution in next reporting period. The data for renewable energy generated at our units is shown in the figure below.

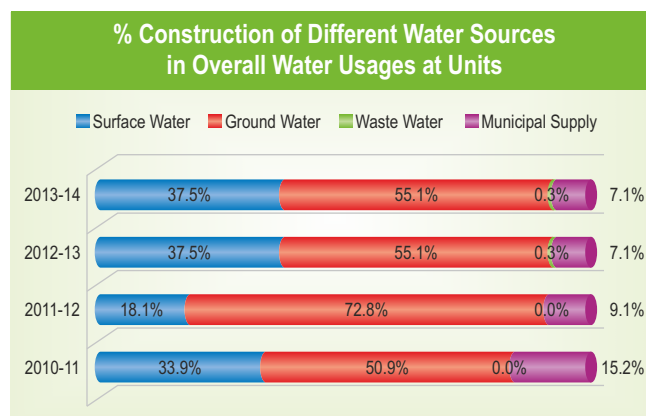
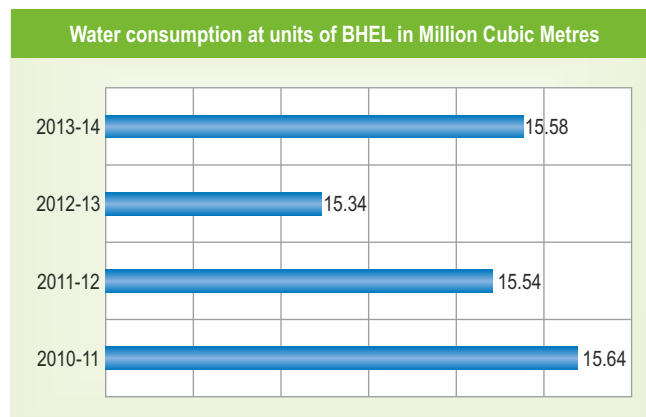


## Managing water – a precious natural resource

At BHEL, water and wastewater systems are sustainably managed to meet the needs of a growing community. Despite the growth in scale of activities at BHEL, water consumption has not increased in the last 4 years as there is an emphasis on recycling and reusing of water at workplace. This is also in line with India's National Water Policy 2012 which lays emphasis on water recycling & reuse and Zero Liquid discharge (ZLD). Many of our units are already ZLD and others are taking steps to move towards becoming the zero discharge unit.

The following figure shows the data for the water consumption in the last 4 years. Our average water consumption is 15.53 Million Cubic Metre. Further the contribution of different water sources is also shown in figure. As evident from the figure, ground water is the major source of water in our units followed by surface water and municipal

supply. Further it may also be noted that at our EPD Bangalore unit, waste water is also being used inside the premise.



Water management at BHEL is done through the following major activities shown in the figure.

### Major Activities pertaining to responsible water management in our units

Consistent efforts are made in developing rain water harvesting potential at all premises

Trade effluents from the factory are treated, reused, recycled and only then drained.

Facility like zero waste water discharge unit, has been created at HERP Varanasi, in which water, used as coolant, is recycled and finally exhausted within the process.

At HPBP Trichy unit, 100% treated trade effluent water is used for irrigation purpose within the complex to maintain



zero discharge hence avoiding contamination of the water body

Recycling of Hydro Test water, cooling tower from SSTP Trichy, treated sewage water from township and factory are facilities that are operating to their full capacities

In Jhansi, water recycling is done within the process, steam is condensed into water, which is recycled back into the boiler

In compliance with environmental norms, the quality parameters of discharged water are within limits for each and every BHEL unit, as specified by the respective state Pollution Control Boards



Collection of rain water in abandoned quarry and reuse for horticulture purpose at Trichy



Glimpses of some of the efforts made by the units in water management in the reporting period is shown in the figures below.



New Effluent treatment plant at galvanizing area (foundry) capacity 5KLD at Bhopal



Enlargement & deepening of pond for 12000 Cubic Mtr. in phase II inside factory premise at Bhopal



Oil separation from drain water at Transformer plant, Jhansi





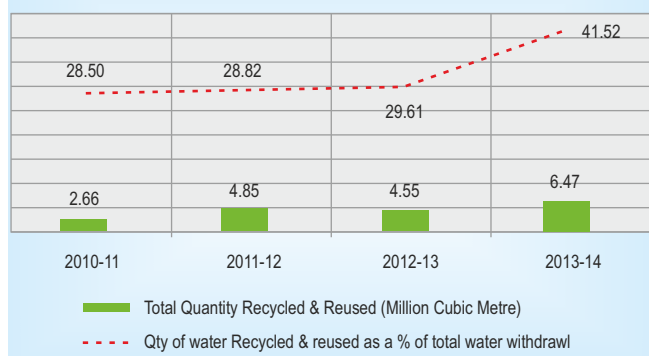
**Storm water recycling plant at Trichy**

During the reporting period a total volume of 3.73 Million M<sup>3</sup> of effluent was discharged from various units of BHEL which is nearly 24 % of water drawl for the same period. All the water quality related parameters were within the prescribed limit of discharge as specified by the respective state pollution control board at the locations of our units.

Further, water recycling / reuse is being practiced at our unit in a big way. The data for water recycle / reuse at our units is shown in the figure below. The water is mainly being recycled in the processes and reused for horticulture purposes.

As can be seen from the figure, there has been a significant increase in recycling / reuse of water in the reporting period. This is mainly because of heightened emphasis on using recycled / reused water in the bigger units like Trichy, Bhopal and Haridwar which taken together account for almost 86% of water uses in BHEL.

**Water reused / recycled at units of BHEL**



BHEL is not a water intensive manufacturing industry and as such there are no water source which are significantly affected by withdrawal of water by BHEL units.

## Biodiversity conservation

As such, none of our units is surrounded by and biodiversity / protected area. With respect to its concern for environmental protection and soil conservation, BHEL has undertaken afforestation activities such as mass tree plantation and development of green belt which has resulted in development of nearly 4.7 million M<sup>2</sup> of green coverage and plantation of nearly 3 million trees till date. It has resulted in 1°-2° lower temperature in our premises as compared to its vicinity. Some of the glimpses of tree planation activities carried out during the reporting period is shown here.



**Tree plantation near western gate at HEEP Haridwar**





#### Mass Tree plantation during Environment Awareness Week at Bhopal

##### Green credentials of BHEL Trichy unit:

- BHEL Trichy Land: 2900 acres
- Fully grown trees: 7 lakhs
- Total Trees available: 12 Lakhs
- Tree intensity: 3525 / Hectare
- TNPCB Requirement: 400 / Hectare

This Mass Afforestation has changed the micro environment of our campus.

##### Transplantation of full grown tree at Trichy unit:

- About 300 Nos. of well-grown trees of different ages and sizes were transplanted in and around factory complex to create space to the expansion of factory shed and to save the life values of trees.
- The survival rate of trees planted is more than 90%.
- Providing our expertise to other local bodies and other government agencies.

There is no significant impact of our activities on biodiversity and as such there is no habitat which is being protected or restored by the company.

## Managing emissions and Carbon footprint

BHEL units have initiated quantification of

relevant gaseous emissions. However, the emission level of NO<sub>x</sub>, SO<sub>x</sub>, SPM & other significant parameters are well within the limits prescribed by respective State Pollution Control Boards. Monitoring and control of emissions from boiler & gas plant furnaces are undertaken regularly to maintain pollution levels below the permissible limits. Some of the recent activities in this direction are:

Installation of fumes extraction system in fabrication shop resulting in Reduction in fugitive emission – HEP Hyderabad

Use of Scrubber to capture Acid mist – EDN Bengaluru

Replacement of Coal-fired boiler to RLNG fired boiler and conversion of Oil-fired HTK to RLNG- fired leading to reduction in Suspended Particulate Matters (SPM) to the extent of 82% - IP Jagdishpur

Conversion of Oil-fired burners to Natural Gas fired, thus reducing emissions – CFFP Haridwar

Switching to cleaner fuel for reduction of emission and carbon footprint – EPD Bengaluru, HEEP & CFFP Haridwar

Reduction of NO<sub>x</sub> emissions by Introduction of Separated Over Fire Air (SOFA) & Optimising combustion efficiency by SOFA damper control – HPBP Trichy

Installation of Fresh air system having capacity of 10000 CMH (20 nos.) and fume exhaust system having capacity of 10000 CMH (20 nos) – HPBP Trichy

Some of the systems installed at various units to control the emission are shown in the pictures. These initiatives have helped in workplace environment improvement.





## FOUNDRY DIVISION



### FUME EXTRACTION PLANT FOR ELECTRIC ARC FURNACE (12/B/2128)

1. Suction Capacity 50,000 CMH.
2. High capacity Bag Filter (759.6 M<sup>2</sup>)
3. Online monitoring of SPM.
4. Variable speed drive I.D. fan.
5. Automatic damper changing facility in both hoods.
6. Automatic by-pass damper for hot fumes >130°C.
7. Swiveling hood facility for both hoods.
8. 30 Meter height chimney.



Fume extraction plant installed at Bhopal unit



Exhaust & fresh air system at Trichy Unit

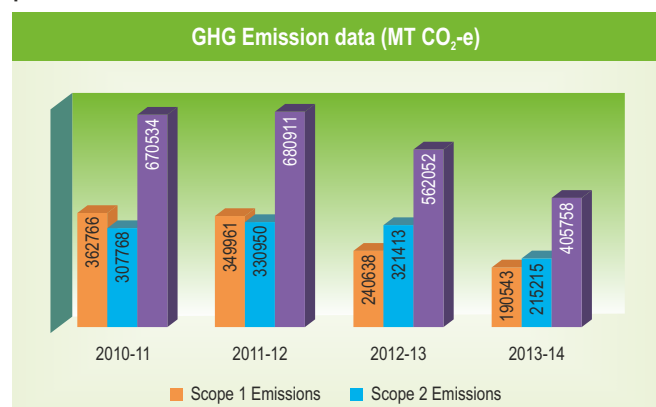
As a responsible Corporate Citizen, BHEL is well aware of the increasing body of work in establishment of the correlation between GHG emissions and Climate Change. It throws open lot of new challenges and presents tremendous growth opportunity for BHEL to develop its products which are greener and modify the internal processes across the organization in the operations and services which are more resource efficient and benign to environment.

With this agenda in mind, BHEL has stated tracking its direct and indirect (Scope 1 & Scope 2) emission at its manufacturing units. However, at this point we must admit that the realisation of life cycle environmental footprint has not be gained traction in the organization thus far.

The data for direct & indirect emission is shown in the figure below. Data indicates that there has been a substantial reduction in emission (Scope 1 as well as Scope 2). This has been made possible on account of

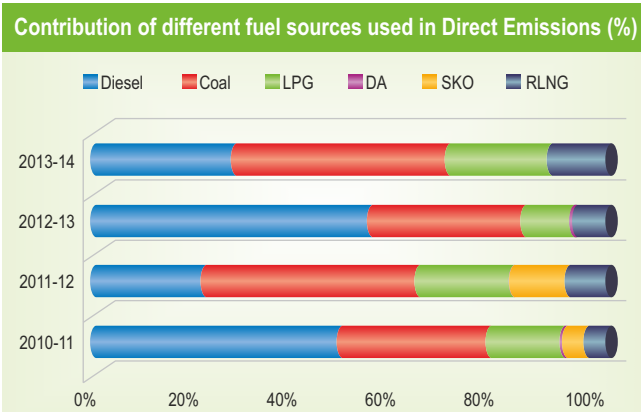
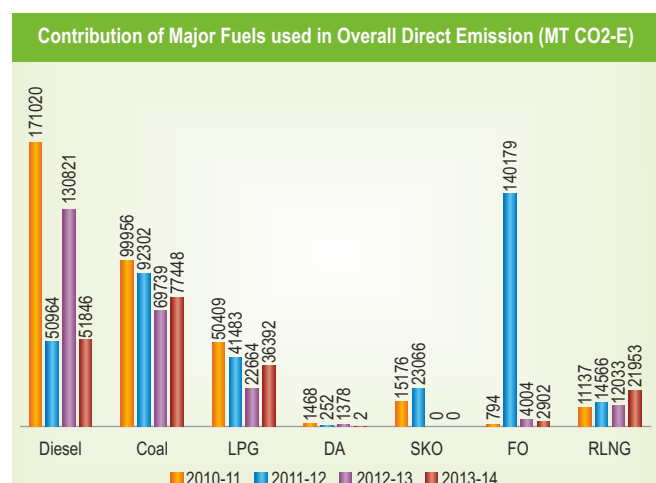


switching over to cleaner fuels and thereby reducing direct emissions and using lesser electricity resulting in lesser Scope 2 emissions. Also the table gives us a clear picture about the direct emissions occurring through burning of different fossil fuels being used at our units. The same is presented in a pictorial form.



**Contribution of major fuels used in units in overall direct emission (MT CO<sub>2</sub>-e)**

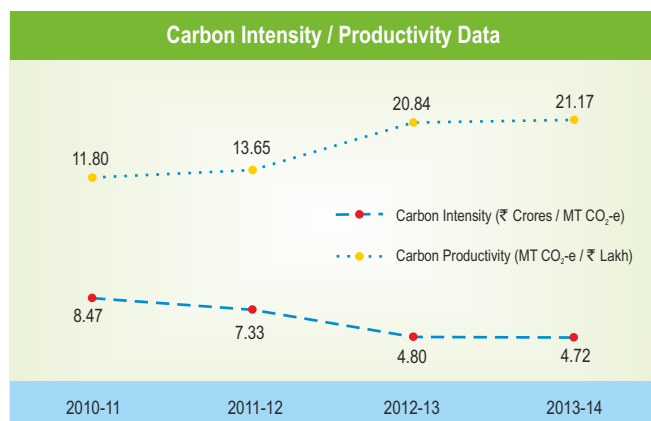
Fuel	2010-11	2011-12	2012-13	2013-14
Diesel	171020	50964	130821	51846
Coal	99956	92302	69739	77448
LPG	50409	41483	22664	36392
DA	1468	252	1378	2
SKO	15176	23066	0	0
FO	794	140179	4004	2902
RLNG	11137	14566	12033	21953
<b>Total</b>	<b>349961</b>	<b>362813</b>	<b>240638</b>	<b>190543</b>



As can be seen from the figure, contribution of diesel in overall Scope 1 emission has decreased for the reporting period. Contribution of emissions due to RLNG and LPG has gone up indicating a shift from more polluting fuel to greener source of energy.

At the moment Scope 3 emissions on account of supply chain, employee commute etc. is not being tracked and credible data for the same is not available. However, we intend to measure the same in future.

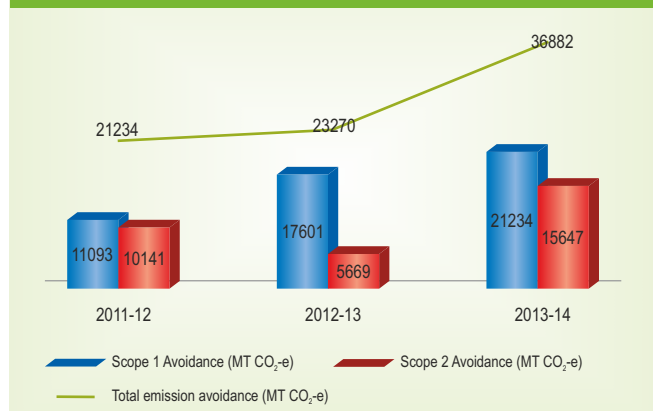
Figure shows the GHG Emission intensity (Crore ₹ per MT CO<sub>2</sub>-e emitted) and Carbon productivity (Carbon Emission per lakh of Gross Turnover) figures. However, it may be noted that the GTO has been taken for entire BHEL whereas the emissions has been considered only for units under reporting boundary. The figure is being presented here only for comparison purpose as the reporting boundary has been same for the data presented here. It clearly establishes the decreasing trend of carbon intensity and increasing trend of carbon productivity across our units.



Further due to various measures taken at our units, a substantial amount of Scope 1 and Scope 2 emissions were avoided and the data for the same is presented in the figure.



#### Carbon footprint avoidance due to measures taken for emission reduction in units



It shows that there has been significant improvement in our carbon avoidance activities and the data is further likely to improve in near term. A major portion in this saving has come from activities taken at Trichy unit due to switching over to LPG from Producer Gas.

Uses of Ozone Depleting substances in refrigerators and chillers are being phased out from our units and at many a places it has been stopped altogether. The quantity of ODS used was 282 Kg CFC-11 equivalent which was lesser than the amount of ODS used (307.88 Kg CFC-11 equivalent) during 2012-13. The new machines purchased in many of our units are using refrigerants like R-134a, R-410a etc. which are more environment friendly.

## Responsible waste management at BHEL

Responsible waste management has always been a thrust area in BHEL. The principles of 3R (reduce-recycle-reuse) is practiced very rigorously in our organization. At planning stage itself efforts are made to minimise the waste. Company has an institutionalised mechanism to recycle wastes in-house to the extent feasible. For example, each MT of the molten steel produced at our CFFP unit contains 54% of the recycled scrap (of CFFP) and 45% of MS Scrap (from other BHEL units), thus making it an almost a 100% recycled product. Various coolants used in our machines are recovered after use, and

recycled again after appropriate treatment. Some of the example of efforts made by the company in responsible waste management practice is shown in the figures below.



Coolant recovery System at Trichy Unit



Coolant recovery system at Hyderabad unit



Oil Reclamation System at Trichy Unit



Organic waste converter at Trichy Unit



Mixing of coal ash with lime for the purpose of flooring at CFFP Haridwar



Separation of scrap by grade at CFFP Haridwar

Different types of wastes generated in Units are segregated at sources and stored and handled in environmentally safe manner. Wastes are categorized in categories like metallic (ferrous & non-ferrous wastes), non-metallic wastes, hazardous wastes, non-hazardous wastes, municipal wastes etc. All metallic & non-metallic wastes having resale value and which can be reused/recycled are sold to authorized recyclers through a government agency, namely MSTC. Similarly hazardous wastes which have resale value are sold to authorized recyclers/processors through MSTC. Other hazardous wastes are handled, stored and disposed of as per prescribed mythology for such wastes. The data for waste generation is shown in the figure below.

Hazardous and Non-Hazardous Wastes generated at units						
Type of wastes	Unit	Quantity (2013-14)	Quantity (2012-13)	Quantity (2011-12)	Quantity (2010-11)	Disposal method
Non -Hazardous	MT	100902.67	69661.71	76522.08	83727.22	Through MSTC/ Other authorised agencies.
	M <sup>3</sup>	1050	7778.00	9863.19	7710.21	
Hazardous	MT	6877.09	8286.93	3426.00	2585.45	Through MSTC/ Other authorised agencies.
	M <sup>3</sup>	0.00	0.00	0.00	34.98	

The waste generated are sold off either through MSTC or other authorised agency. Some of the ferrous scrap is sent to CFFP Haridwar for recycling. Hazardous waste is disposed of as per requirement of respective SPCB through agencies authorised by MoEF or other government agencies.

The data for waste recycled at our units is provided in the figure below.

Waste Reused / recycled at units					
Type of wastes	Unit	Quantity (2012-13)	Quantity (2012-13)	Quantity (2011-12)	Remarks
Non -Hazardous	MT	6415.28	3761.475	2373	Includes ferrous as well as non-ferrous materials
	M <sup>3</sup>	1050	1260	640	Mostly wood waste used for making packing boxes
Hazardous	MT	3.62	4.11	4.0	Used oil



### This data includes:

- 1800 MT of Mild Steel scrap/Offcuts generated at Bhopal which was melted in electric arc and induction furnace to produce steel castings
- 1828 MT of Copper & copper alloy Scrap which was melted in induction furnace to produce copper and copper alloy castings
- 1050 M<sup>3</sup> wood which was used for making wooden box
- 633 MT cut-bit scrap reused in BAP Ranipet
- 3760 MT Rejected insulator and other sellable scrap which was sold to secondary users like refractory product producers for recycle/reuse at IP Jagdishpur and EPD Bangalore

Further there has been no hazardous waste as per BASEL Convention which has been shipped internationally. Total steel scrap processed in Steel melting shop at CFFP Haridwar unit in 2013-14 was 28635 MT, which bears the testimony of our commitment towards responsible waste management.

### Management of Significant Spills

No significant spills reported in any of the manufacturing units during the reporting period. However, minor spillage particularly at the time of preventive machine maintenance is taken care of according to environment management practices (ISO 14001: 2007) adopted. Further there are no water body and related habitats which is significantly affected by our discharge of water and runoff.

### Compliance

All major Units and divisions of BHEL have well established Environment Management Systems (EMS) certified to ISO-14001: 2004 and Occupational Health and Safety Management Systems (OHSMS) certified to OHSAS 18001: 2007. These management

systems provide an excellent framework for proactively identifying and ensuring compliance of applicable environmental, occupation health and safety related rules and regulations. Periodic audits are carried out by the certifying agencies to ensure effective implementation of the established systems, including legal compliance. All applicable environmental consents & licenses are maintained and their terms & conditions are complied with.

Further none of the units has been imposed with any monetary fines and non-monetary sanctions for non-compliance with environmental laws and regulations in the reporting period.

### Impact of products and services on environment

BHEL is sensitive to the fact that, globally, power sector currently accounts for 41% of energy – related CO<sub>2</sub> emissions. It is reiterated that decarbonising power sector will be at the heart of our efforts towards extensive reduction in global CO<sub>2</sub> emissions. The company has always been a torchbearer in these endeavours for the industry in India. BHEL initiated Coal Research Programme in the late seventies to develop technologies for efficient utilisation of Indian coal and minimising its environmental impact. With 500 MW in 1984, 660 MW and 800 MW in 2008, and 700 MW in 2010, BHEL has been progressively introducing environment friendly and fuel efficient technologies for its customers. BHEL also brought CFBC for burning multiple fuels, HRSG for absorbing waste heat and IGCC for coal gasification technologies to India.

Today, BHEL's equipment boast of world-class performance attributes like, lower auxiliary power consumption, superior boiler efficiency, better plant heat rate & plant load factor (PLF) and finally lower life-cycle cost. Customers of BHEL, while remaining profitable, are able to serve the nation in



accordance with prevalent and acceptable social and ecological standards. Various performance reports from Central Electricity Authority, India and North American Electric Reliability Corporation (NERC), USA explicitly indicate superior performance of BHEL thermal sets, which ultimately leads to most optimal utilization of fossil fuel coal in such power plants.

Four prime products which have incorporated environmental concerns in their design are Power Plants operating with Steam at Supercritical parameters, Circulating Fluidized Bed Combustion Boilers (CFBC), Solar PV and Electrostatic precipitator (ESP). Some of the products whose design has incorporated social or environmental concerns, risks and/or opportunities are:

**I. Power Plants operating with Steam at Supercritical parameters:**

These are more efficient power generation technology leading to 2.5% to 3% increase in overall plant energy conversion efficiency levels, consume less make up water, use lesser steel and are more compact..

**II. Circulating Fluidized Bed Combustion Boiler (CFBC):**

– It can burn a wide variety of fuels, including very low calorific value and high sulphur fuels, Low grade fuels, Kutch-Lignite etc., generate very low levels of pollutants like  $\text{SO}_x$  and  $\text{NO}_x$ . Compared to a conventional pulverized coal fired boiler which generates approx. 400 ppm of  $\text{NO}_x$ , FBC boilers generate only about 50 ppm, which is very environment-friendly. Further, employing FBC boilers totally obviates the need for having separate Flue Gas Desulfurization (FGD) systems that may be mandated by use of pulverized coal fired conventional boilers for high sulphur fuels. This results in a huge savings in capital cost, ground area foot-print, in addition to savings of

direct materials, auxiliary power consumption, water consumption and labour.

**III. Solar Power plant:** BHEL has supplied more than 55 MW<sub>p</sub> (suffix P denotes peak power) Solar-PV clean energy systems to various customers in India. This includes the following:

S. No	Customer / Place of installation	Rating (MW <sub>p</sub> )
1	NTPC, Singrauli	12
2	NTPC, Unchhar	10
3	NTPC, Talcher	10
4	Indian Oil Corporation Ltd at Rajasthan	5
5	Karnataka Power Corporation Ltd, Raichur, Karnataka	3 + 5
6	BHEL Ranipet	5
7	Indiabulls, Nagpur	2+2
8	Indiabulls, Bareilly	2
9	Solar power sets at Lakshadweep islands	1.9

Our BHEL Trichy unit has taken up a Pilot scale set up & study on oxy fuel combustion system. In oxy fuel combustion, the process of combustion of fuel takes place in presence of pure oxygen (in absence of nitrogen), hence the end products primarily consists of  $\text{CO}_2$  and water vapour. The water vapour can be condensed and removed easily by cooling to low temperature. The resulting flue gas consist of mostly  $\text{CO}_2$ , which can be readily send for capture. However, the absence of  $\text{N}_2$  increases the flame temperature to very high value. This is unacceptable to most of the materials used in boiler applications hence a part of flue gas (consisting primarily carbon dioxide and water vapour) at the end of combustion process is recycled back to burner. This flue gas acts as moderator of flame temperature and reduces the peak flame temperature to acceptable levels. Optimal flue gas

recycling makes the usage of existing boilers to the oxy fuel combustion technology. The oxy-fuel combustion project is currently under progress at Solid Fuel Burning Test Facilities (SFBTF), CR test facilities. For this project existing SFBTF has been modified by adding FGR fan, FGR ducting, an Oxygen line from Unit –II and a new oxy- fuel burner (Developed in house). This project enable BHEL to develop an oxy- fuel based boiler design for advanced power plant with CO<sub>2</sub> capture.

Test firing bio diesel for boiler application has been conducted by Trichy unit and palm based biodiesel has been tested at Liquid Fuel Burning Test Facilities (LFBTF) CR test facilities to replace the conventional liquid fuels such as Heavy fuel oil, light diesel oil etc. in boilers. The test results and recommendations were shared with BPP FES and fuel firing / PE (FB) for further implementation at site.

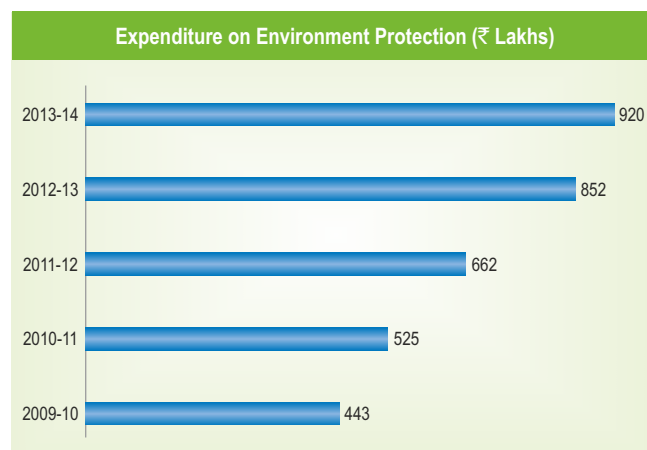
A plethora of such other activities are taking place at our R&D centre and across the units. It will help us in coming up with cleaner products and services in future which in term will make our environment cleaner for future generations.

## Environmental Protection Expenditure

BHEL has been taking lot of projects for improvement of environment in and around its units in addition to projects taken under Sustainable development Projects. These activities include cost incurred on Stack emission and ambient air quality monitoring, obtaining consent / authorisation under environmental legislations, external certification services, installation of new environmental friendly technologies, insurance for environmental liabilities, and projects taken for environment improvement.

The expenditure incurred on such activities is

shown in the figure below. It clearly shows an increasing trend on our expenditure towards protection of environment. This data does not include the salary of officials engaged in Environmental management Activities.



In addition to these environment improvement projects, lot of projects were taken under the CSR & Sustainability fund in last 2 years. These are indicated in the figure below.

Sl. No	Focus Area	Expenditure (₹ Lakhs)	
		2012-13	2013-14
1	Water Management	0.0*	11.1
2	Rain Water Harvesting projects	60.9	28.24
3	Energy Management (Energy Conservation / Energy Efficiency projects)	348.5	289.93
4	Waste Management	56.4	64.02
5	Installation of Solar Photovoltaic based system (Grid Connected / Stand alone)	327.6	4150
6	Installation of Renewable energy based systems (other than SPV)	0.0*	22.28
7	Protection, conservation and restoration of eco-system (Tree plantation etc.)	14.5	34.46
8	Pollution Prevention	0.0*	24.79
9	Others (Capacity building, Reporting etc.)	8.3	0.82
<b>TOTAL</b>		<b>816.2</b>	<b>4625.6</b>



## OUR SOCIAL PERFORMANCE

### Management Approach - Labour Practices & Decent Work

BHEL has been a frontrunner in the area of human resource management (HRM) and among the pioneers to have documented the HRM policies and rules in the form of a Codified Personnel Manual. The purpose of this document is not just to give information on the benefits and entitlements but also to ensure transparency and uniformity of implementation which is the cornerstone of corporate governance. BHEL has formed HR Committee and Remuneration Committee on Performance related pay to take care of interest of the employees. Documented HR Policy is "To ensure availability of competent, motivated and effectively contributing human resource and to facilitate achievement of full potential of employees at all times to realize the organizational mission."

The Company strongly advocates elimination of all forms of forced and compulsory labour. It 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. Uniform set of rules are mentioned in "The Personnel Policy" of BHEL, which apply equally to all employees, irrespective of factors such as sex, caste, religion, race etc. All recruitments are conducted in a transparent and impartial manner, giving equal opportunity to all eligible candidates, without any discrimination whatsoever.

### Profile of the employee base

The greatest strength of BHEL is its highly skilled and committed 47,525 employees. Every employee is given an equal opportunity to develop himself / herself and grow in his / her career. Right from induction, entry-level Artisans, Supervisors, Engineers and

Executive Trainees are trained to mould them into taking up responsibilities in a creative environment. They are appropriately nurtured and guided by the senior managers who moderate and streamline their creative energies in line with company's objectives. Continuous training and retraining, career planning, a positive work culture and participative style of management. All these have engendered development of a committed and motivated workforce setting new benchmarks in terms of productivity, quality and responsiveness. The talent hub of 13347 executives of BHEL consists of 9549 qualified engineers.

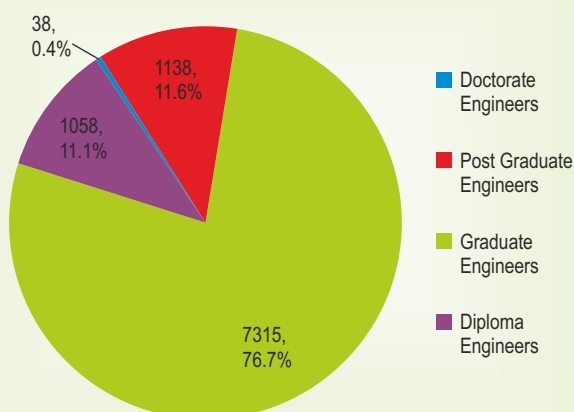
Average Age of Employees



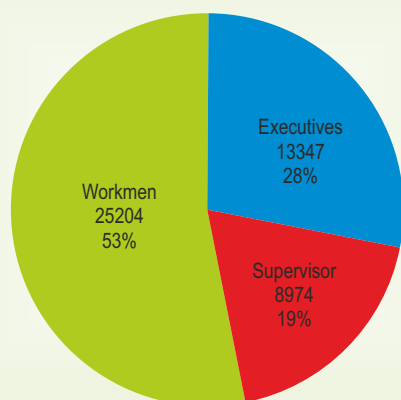
Demographic profile at BHEL is moving in favour of millennial generation resulting in gradual reduction of average age of employees, say from 48.96 yrs. in 2006 to 40.84 yrs. in 2013. Therefore, People Development strategy of BHEL is focusing on developing each person's competencies in alignment with business plans through implementation of initiatives like leadership development, competency mapping, performance linked pay, mentoring, Skill Development, career planning and succession planning.



#### Qualified Engineers - Executives (as on 31-3-2014)



#### Category-wise Manpower (as on 31-3-2014)



As stated earlier in this report, BHEL does not hire employees on temporary / casual / part time basis. Some of the major benefits provided to the BHEL include Provident Fund, Employees' Family Pension Scheme, Earned Leave, Half Pay Leave, Gratuity, bonus, medical and Post-Retirement Medical Benefits.

## Labour / Management relations

In BHEL there are three distinct cadres of employees namely Workmen, Supervisors and Executives. Out of these, only the workmen cadre, which constitutes approximately 53% of total manpower strength, are covered by agreements on issues like wages, perks & allowances, incentive, etc., arrived at through the process of collective bargaining in the Joint Committee for BHEL, which is an Apex Level

Bipartite forum constituted for discussing worker and Company's interest related issues with the worker representatives, based on the principle of participative Management. This committee has been in existence since 1973. The joint committee at the Apex level and Plant and Shop Councils at the unit level have a very important role to play in maintaining the growth of the company and also to make all employees aware of business environment. Issues like production, productivity, quality, on-time delivery, cost reduction, encouraging suggestions and such other work related issues are discussed and information is disseminated to the lowest level in order to familiarize the employees to the challenges ahead and the need for putting in their best so that the Company is not only able to meet such challenges, but emerge out stronger.

In respect of executives and supervisors the Government issues instructions for their salary and other related benefits. However, the executives and supervisors have formed their associations and regular meetings are held with them wherein their views and suggestions are duly considered.

The minimum notice period provided to the worker's representatives prior to the implementation of significant operational changes having an impact on their service conditions is as per the statutory provision contained in the industrial Disputes Act. However, it has been our experience that as far as the operational changes related to introduction of new machines/ technology etc. are concerned, there has been no resistance by the workmen.

## Occupational Health & Safety

Participative Management Culture has been the hallmark of BHEL's Industrial Relations policy since beginning. Thrust on participative culture continued during the year and the Industrial Relations scenario in various Manufacturing Units and Business



Sector/Offices of the Company remained harmonious and peaceful during the year 2013-14. The thrust on participative management culture and communication continued during the year. The Joint Committee for BHEL met twice. There were 70 meetings of the Plant Councils and 486 meetings of the Shop Councils. In addition, frequent meetings were also held with the representatives of Executives and Supervisors of the various Manufacturing Units including the Business Sector/Offices wherein both Company and employee interest related issues were discussed.

Dedicated Safety and Occupational Health Centers are being run in the Factory premises taking care of safety and health issues at the work place. Some of the initiatives taken in factories to build and maintain good occupational health & safety culture are listed in the figure.

Periodic Health and Safety awareness campaigns
Regular health and safety related training programmes at HRD Centre
Display of posters and safety instructions
Safety pledge & Tool box meetings
Regular Plant Safety Inspections by Safety Officers / Supervisors and by a team of Shop executives & Safety Stewards
Personal Protective Equipment
Liaison with statutory authorities
Internal audits & external audit by 3rd party
Publication of in-house magazines and hand books on various safety topics
Mock Drills in identified hazardous areas as per schedule
Regular awareness programs on general safety & road safety for school children
Monitoring of quality of food & water in canteens

Operation control procedures are developed and issued to the concerned for implementation

Monthly departmental Safety Committee meetings and plant safety committee meeting

Periodic Maintenance & Testing of material handling equipment (including cranes, hoists, lifting tackles, forklifts, pallets); all pressure vessels/ air receivers, power presses etc.

Material Safety Data Sheet (MSDS) is available for all the hazardous chemicals and safe work procedures are followed

Job Safety Analysis for identified activities

Work Permit system for carrying out critical activities

Scheduling preventive maintenance of machine/ equipment

Periodic safety drills

Good house keeping

Providing sponsorship to employees for full time safety related course at RLI for capacity building

Conducting training for first aiders

Providing safety instruction to visitors

## Some glimpses of good safety practices at our units



Mock drills being conducted under Mutual Aid scheme involving nearby fire services at Trichy unit





Mock drills being conducted under Mutual Aid scheme involving nearby fire services at Trichy unit

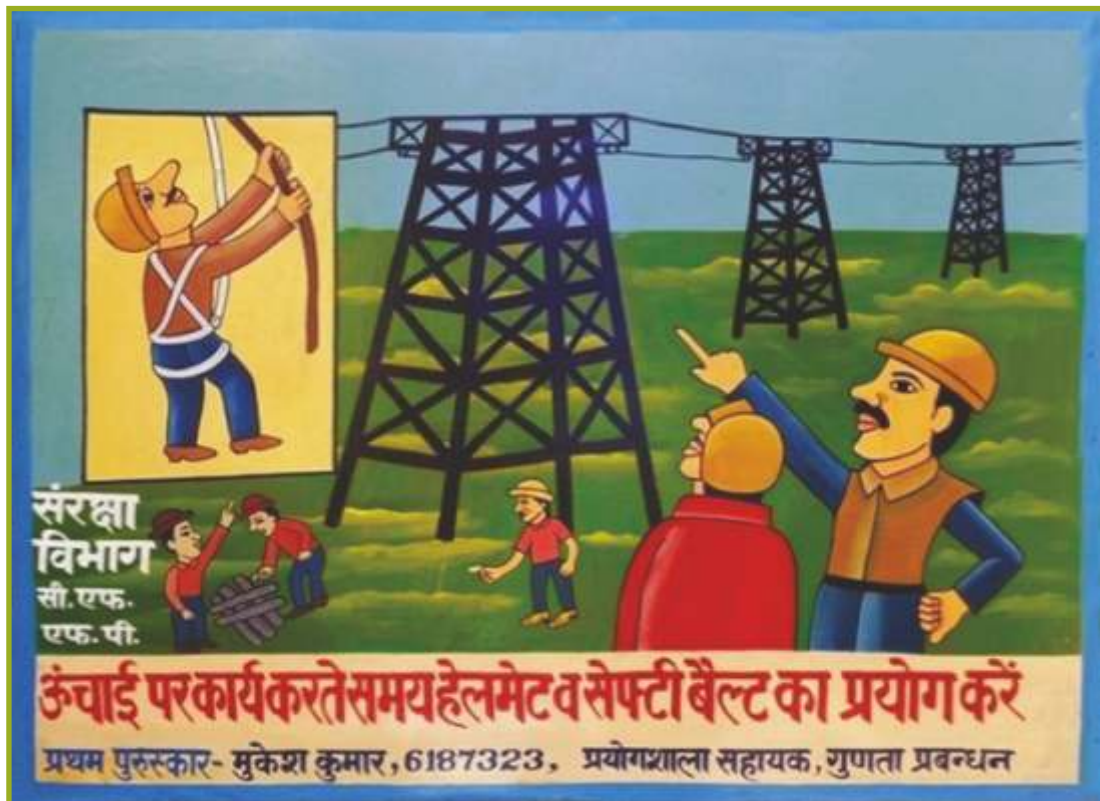




Reflective vests provided to crane operators and Slings at Bhopal unit



PEP talk at work spot by Safety Officer @ Hyderabad unit



Safety Poster competition at CFFP Haridwar



Further, Annual Safety Heads Meet was conducted at BHEL Trichy on 28th - 29th May 2013 for sharing of experience amongst the people directly responsible for ensuring safety at their respective workplaces.

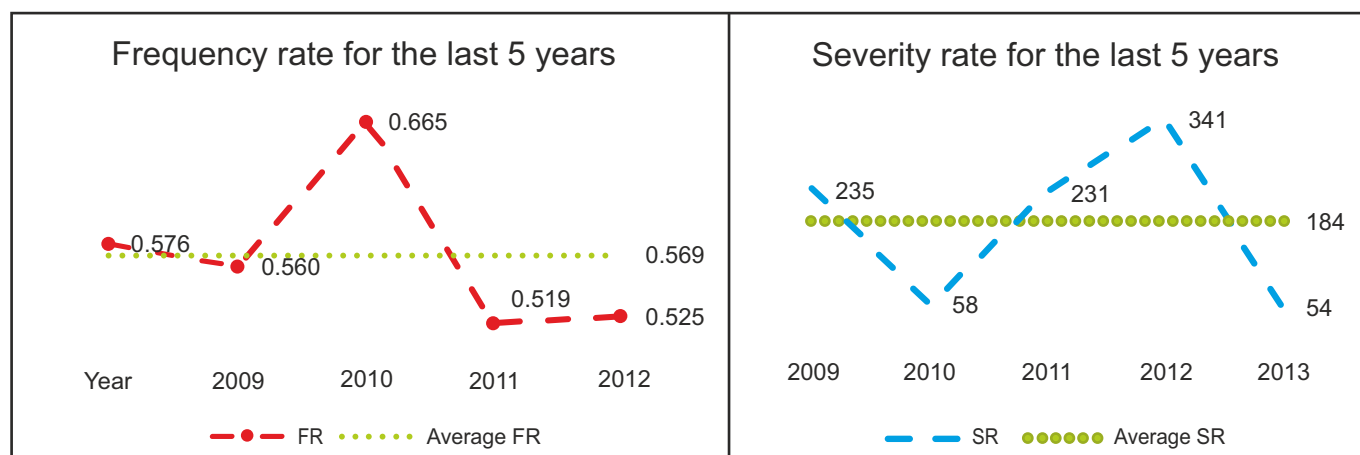


Participants of BHEL's Safety Heads Meet May 2013

The accident related data for the units in the last 5 years is shown in the table.

### Safety Statistics for BHEL units

Year	Total Reportable accidents	Total Man days lost	Man Hours worked (in Million Hours)	Frequency Rate	Severity Rate
2009	80	32655	138.883	0.576	235.13
2010	82	8433	146.338	0.560	57.627
2011	97	33711	145.961	0.665	230.959
2012	77	50582	148.42	0.519	340.803
2013	88	9029	167.366	0.525	53.947





Lot of efforts are being made to improve the safety culture in BHEL which is likely to improve our safety records in the coming days.

There is no specific area where workers with high incidence or high risk of diseases related to their occupation has been identified / reported.

BHEL has no specific agreement signed with the trade unions related to health and safety topics. However, there are various participative forums to discuss health and safety aspects of workmen like Works Committee, Shop Council, Central Safety Committee, Hygiene committee, Hospital Apex Committee etc. in our units that has elected or nominated members who represent the entire workforce.

## Training

The Human Resource Development Institute (HRDI) situated in Noida, is the cornerstone of BHEL's learning infrastructure along with the Advanced Technical Education centre at Hyderabad and Human Resources Development Centres (HRDC) at different Units. Consistent with the HRD mission statement "to promote and inculcate a value based culture utilizing the fullest potential of human resources for achieving the BHEL mission", the HRDI through a step by step long term training process and short term need based programs, enables human resources to hone their potential.

HRDI has aligned its programmes and initiatives in line with company's six point agenda for dynamic growth and leadership and Strategic Plan 2012-17. Some of the important programmes include core programmes; strategic need based and functional programmes like Strategic Management Initiative for Leadership Effectiveness (SMILE), Advanced Management Programme (AMP), General Management Programme (GMP), Strategic Management Programme (SMP), Middle

Management Programme (MMP), Young Managers Programme (YMP) and Self Starter Programme (SSP).

A brief on programmes conducted for various stakeholders is given below:

### Programme for Customers:

BHEL organized a programme on "Organizational Development through HR/HRD Initiatives Programme" for our customers from Druk Green Power Corporation Limited (DGPCL) to understand the innovative HR/HRD practices of BHEL

### Workshops on New Technologies and Risk Management:

Today, businesses have become more prone to market risks owing to a multitude of factors, both internal and external. For converting these impending threats into opportunities & to create manpower ability in dealing with these new technologies as envisaged in our MoU 2013-14, workshops were planned on new technologies:

- Conference on Clean Coal and Carbon Capture and Storage Technologies held in Trichy in which experts from International Energy Agency and other world renowned institutions also participated.
- Workshop on IGBT based propulsion systems at Bangalore in which speakers from Concept (Germany), Infineon Technologies and Bose Research Institute also participated.

### Workshops on Risk Management:

- Two days Inter Organizational Conference on Enterprise Risk Management with participants from 7 Maharatna (GAIL, SAIL, IOCL,



NTPC, CIL, ONGC & BHEL) and 4 Navratna (PGCIL, PFC, EIL & Oil India) PSUs.

- Workshop on Risk Management was organized at HRDI covering senior executives (E7 and E8) from all Delhi based divisions followed by similar workshops at EDN Bangalore, Trichy, Hyderabad and Power Sector.

### People Development Workshops:

- Workshops held all across BHEL covering 4700 executives with the objectives of sensitizing Reporting officers towards their role in developing their subordinates and empowering them to understand and adopt a style that facilitates their development. This initiative included the entire gamut of executives at level E4 to E7.
- 29 half-day programmes on People Development for Ethical leadership based on the Gandhian Ideology were conducted by Ms. Shobhana Radhakrishna, an eminent citizen to the Ministry of Rural Development, Government of India & Mr. Ravi Chopra, Founder Secretary of the Centre for Gandhian Vision and Values. 1630 Executives of all levels at various Units/Divisions of BHEL participated in these programmes.

### Knowledge Transfer Workshops:

These were devised as a mechanism to capture existing knowledge from the seniors who have superannuated or are due to superannuate & to document their knowledge for the benefit of future engineers of BHEL. During 2013-14, this initiative was carried forward and the following workshops were conducted at units:

- Ranipet – FGD, ESP and New Products covering 195 participants
- Hyderabad – Compressors, Pumps and Condenser & Heat Exchangers covering 54 participants

### Functional Workshops:

HRDI conducted two workshops for Materials Management at Bhopal covering 94 participants and Finance Workshop at HRDI covering 30 participants

### Competency Programmes:

Based on the BHEL Leadership Competency Model and assessment & development of Behavioral Competencies for Senior Executives through Development Centers undertaken during 2011-12 & 2012-13, a gap analysis of the competencies which need to be developed at the organizational level was compiled. All programmes during 2013-14 conducted at HRDI were designed to address these Leadership Competency Gaps

- Special Organizational Development Programme: Eight workshops titled “Transformational Leadership Programmes” were conducted which covered over 190 executives of E1 & above level at Project Engineering Management, Noida

### Programme for Top Management:

In collaboration with NTPC, a Top Management programme named - “Strategic Management Initiative for Leadership Effectiveness (SMILE) Towards Global Strategic Leadership” was held for 13 days at Greater Noida and Washington D.C. by International Management Institute, New Delhi. The programme was attended by 15 Executive Directors & General Managers from BHEL



The Training man days per employee was 5.02 in the year 2013-14. For a brief on programmes conducted for various stakeholders reader may refer to pp. 63-64 of BHEL's annual report on [www.bhel.com](http://www.bhel.com).

Details of training given to different category of employees during the period 1st April 2013 to 31st March 2014 is given in the table below.

S. No.	Classification	No. of Employees Trained in 2013-14	No. of Training Days	Training Man Days	Training Man hours
1	Executives	18511	5714	40309	322472
2	Supervisors	9101	2779	16170	129360
3	Artisans	10602	3975	14792	118336
4	Supp. Tech Staff	2426	476	3137	25096
5	Clerical & OSS	2401	351	2967	23736
6	USW & SSW	2363	513	2594	20752
7	ETs	385	1320	36418	291344
8	STs	490	1115	35894	287872
9	Artisan Trainees	837	390	18054	144432

Internal training courses to upgrade skills (technical as well as behavioural) is provided to all category of employees on continual basis. For employees due to superannuate, a training on transitioning to a non-working life is provided through a retirement planning training program. HRDI conducts 2 such programs per year covering about 50 participants. 4 major Units also conduct 2 programs each on an average covering about 25 participants per program.

## Performance and career development review

For executives, there is a centralized e-enabled Performance Management System administered at the corporate level. Performance in this system is defined in terms of Key Result Areas (KRAs). The PMS is administered in three phases: Performance

Planning, Mid-year Review and Final Review. Every executive prepares his performance Plan at the beginning of the year in terms of KRAs and measurable targets. These are mainly derived from the Balanced Scorecard of the unit through a process of cascading, which ensures alignment of individual targets with the unit targets. This performance plan is reviewed and approved by appraiser and then by the next level (reviewer). Progress of the performance is reviewed during mid-year review when feedback is given and mid-course corrections made, if required. At year-end, the performance is measured in terms of targets achieved against each KRA. This forms the KRA Score.

The softer aspects of performance like Quality of Work, Cost Consciousness, Contribution to Group Objectives and Process Orientation are also measured which get factored into the KRA score to give the final Performance score of the individual. KRAs are pre-defined for each Function, which ensures a high degree of consistency as far as the performance deliverables of various functions is concerned. The system is totally transparent to the executive at each phase and the final scores are also shared with the concerned executive. The entire system being e-enabled and centrally monitored, timely completion of each phase is ensured. Based on guidelines from the Supreme Court, a provision for appeals has been created.

Executives who are Heads of Unit / Product / Functions are evaluated on the basis of the performance achieved for their respective Balanced Score Cards. This ensures full commitment of the concerned executives to the achievement of the targets assigned to the respective Units / Product / Function in the organization.

On similar lines, the Performance appraisal for the unionized category of Workers and equivalent grades of Supervisors is being done through an on-line system run centrally

at the corporate level. With the various checks and balances in the system, it is ensured that all the yearend appraisals are completed in a uniform and timely manner.

## Diversity and Equal opportunity

The company has been following the Presidential Directives and guidelines issued by the Government of India from time to time regarding reservation for SCs, STs OBCs and PH. During the year 2013-14, various Community Development activities focused on Socio-Economic development of SCs, STs and Backward classes have been carried out in the communities and villages in and around BHEL Units and in locations where company has presence under BHEL Scheme of Corporate Social Responsibility. The following table captures the indicators of diversity at BHEL. For the details about SC/ST, minority employees etc., kindly refer to page 65 of BHEL's annual report 2013-14.

	Women	Disabled persons	Minority Group
% in total workforce	5.56	2	8.4
% in senior management	3.5	0.3	5.7

BHEL is an **equal opportunity provider** and follows all rules & regulations issued by Govt. of India from time to time. All employees, irrespective of their religion, sex, marital status, physical or mental disability, medical condition and socio-economic background are given equal opportunity in the company in terms of employment and career growth.

Women are often made members of various committees formed to oversee/ recommend employee related matters and policies e.g.:

- BHEL is an active member of the networking platform of Forum of Women in Public Sector which conducts programmes in collaboration with

SCOPE for which company nominates women employees.

- Wherever woman employee of the required level/ grade is available in the Company, they are made as members of the various promotion panels. Senior women professionals (DGM & above level) are integral part of the recruitment panels - both Open and Campus Selections. Women employees are also involved in various capacities in recruitment function like Corporate Observers, Centre Directors etc.
- On prevention of sexual harassment of women at work place, amendment to CDA rules have been affected. Complaints Committee has been constituted in various locations where BHEL has a unit. Awareness programmes are conducted for both men and women in this regard. It helps in generating a healthy work environment.
- Special programmes are organized exclusively for women employees in various units of BHEL, essentially in the areas of Health Management, Financial Management and Empowerment.

Excellent crèche facilities are provided in all Manufacturing units of BHEL where there are more than 20 women employees.

As per the HR Policy of BHEL, All female employees, excluding Apprentices under the Apprentices Act 1961, are entitled to the grant of maternity leave as per the Maternity Benefit Act as under:

- On full pay for a period of 180 days from the date of its commencement in case of female employees with less than two surviving children,
- Maternity leave to female employees with more than two surviving children will be restricted to 12 weeks (84 days).

Also Female employees are entitled for grant



of Child Care Leave by the concerned Head of Department for a maximum period of two years (i.e. 730 days) during their entire service period.

All male employees with less than two surviving are entitled to paternity leave for a period of 15 days in one spell.

## Supplier assessment

For all the tenders of ₹ 10 Cr. & above, signing of Integrity Pact with the vendor is a must in the organization. Registration of new suppliers in BHEL is based on Organizational Soundness, Quality System, Technical Competence, besides financial information. Suppliers are being constantly made aware of company's code of conduct through various platforms. Noncompliance of Integrity Pact are covered under Sec 2. Principal (BHEL) is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process or take action as per the separate "Guidelines for Suspension of Business Dealings with Suppliers/ Contractors" framed by the Principal.

In 2013-14, no complaint of child labour / forced labor / involuntary labor/ discriminatory employment has been received. Till now, the impacts on the society in the supply chain has not been identified in a structured way and consequently no suppliers were screened for their impact on society.

## Management approach - Human rights & Anti-corruption

BHEL policies are in line with the principles of Human Rights, The Constitution of India, and applicable statutes. BHEL has special provisions for ensuring safeguard of women employee at the workplace. Principles of Natural Justice are enshrined in "The BHEL Conduct, Discipline and Appeal Rules" applicable to all its employees except workers who are governed by the Standing Orders. Further, BHEL is a life time member

of United Nations Global Compact (UNGC), India Network. The company reports its performance on 10 Principles of UNGC every year through Communication on Progress which is uploaded on company web-site also for public viewing which can be accessed at: [http://www.bhel.com/healthsafety/global\\_compact.php](http://www.bhel.com/healthsafety/global_compact.php)

BHEL believes in the highest levels of personal and institutional integrity. The Value Statement of the Company calls for the highest ethical standards to be observed in decision making and demonstration of the same in honest, decent and fair manner. The Company has zero tolerance approach towards all forms of corruption. BHEL is committed to enhancing transparency in all its business dealings for which it has a Vigilance set-up in place to prevent irregularities. Main objective of the Company is to curb corruption by focusing more on the preventive and educative aspects, rather than investigative /punitive. Training programmes, seminars / conferences and interaction of Chief Vigilance Officer with the employees is a regular feature in the Company.

## Protecting human rights in Supply Chain

BHEL deals with Indigenous suppliers (including suppliers from Micro & Small Enterprises) as well as Foreign Suppliers for procurement of goods and services. Total registered supplier base as on 31.03.2014 is over 19,000 nos. Regular supplier meets are being organized by various BHEL units showcasing items for which additional suppliers are required. During 2013-14, 43 such meets were organized.

BHEL prefers to directly deal with OEMs. On recommendation from OEM, agents/ dealers are permitted to participate in the tenders. However, proper agency agreement between OEM and agent is ensured.



BHEL, being a PSU company has statutory obligation to undergo contracts with suppliers and contractors who oblige with human rights requirement as stated in the contract agreement (Rate contract agreement, Standard Condition of Contract etc.). The agreement comprehensively contains clauses related to child labour, UN convention on Human Rights, Health & Safety requirements, forced/ bonded labours, contract labours, Minimum wage payment, insurance, welfare etc.

Training on UN Global Compact Principles forms an essential part of Induction training in the organization which covers all the new inductees in the organization.

No human right review has been done during the reporting period as there has not been any incident of human right violation which has been brought to the notice of the organization. Further in BHEL no such operations have been identified in which the right to exercise freedom of association and collective bargaining, may be at significant risk, and thus no actions taken to support these rights.

## Performance on anti-corruption

The organization has signed 'Integrity Pact' with Transparency International. The intention is to make public procurement and contracting more transparent by binding both the parties to ethical conduct. The Company is subject to RTI Act, 2005 and audit by Statutory Auditors (under section 224 of the Companies Act, 1956), CAG audit under section 619 of the Companies Act, 1956.

On regular basis, all Manufacturing Units are being analysed to identify the risk prone areas with a view to check the corrupt practices, if any. In addition, a total of 61 public grievance complaints were received from the general public under the Centralized Public Grievance Redressal and Monitoring Scheme during the 2013-14. All the

grievances were disposed of within the prescribed time of 60 days. During the reporting period 100% of business units (22 units/locations) were analysed for risks related to corruption. All Executives & Supervisors are provided training on Company Policies & guidelines about procurement matters.

The organization continues to take all possible steps to build systems and procedures, which are simple, transparent and easy to comply with by everyone concerned so that a transparent and corruption free environment prevails. All the directives issued by the Central Vigilance Commission from time to time have been complied with. Vigilance Training programmes are conducted to update employees about company's policies, rules and procedures. 104 such programmes were organized during the year 2013-14 in various BHEL Units and Power Sector Regions. In addition, interactive sessions were held with line executives representing different functional areas to sensitize them about the risk prone areas.

To create awareness about the procedures of procurement in BHEL, to disseminate the instructions issued by Statutory Authorities and to share the case studies, quarterly e-Newsletter "DISHA" is being published.

The Vigilance Awareness Week was observed from 28th October to 2nd November, 2013 in Corporate Office, Manufacturing Units, Power sector Regions and Project Sites of BHEL. Observance of Vigilance Awareness Week commenced with the PLEDGE of Integrity by the employees. Interactive sessions/discussions on the theme "Promoting Good Governance—Positive Contribution of Vigilance", were organized at Corporate Office and in Units/Regions. Lectures and interactions with various eminent personalities, expert speaker on relevant topics like RTI, Frauds, Risk



Management to Ethics and Values etc. were also organized across the organization during Vigilance Awareness Week.

Corporate Vigilance teams inspected 6 Vigilance Units of BHEL. The findings were discussed in interactive sessions with the Unit Managements. It was impressed upon officials to focus on the aspects of estimation and price reasonability while dealing with procurement to remain competitive in the market. The interactive sessions helped BHEL officials to appreciate the role of Vigilance in promoting a strong, viable and competitive organization.

This year a total of 2011 management employees (18% of management strength) were trained in BHEL's anti-corruption policies and procedures. Detailed investigations are conducted in every case of suspected corruption and necessary action for system improvement is taken wherever required. In addition, appropriate action is recommended against the defaulting officials keeping in view the gravity of the misconduct. During the reporting period 42 cases were investigated. As a result of these investigations major penalty was imposed on 07 employees, minor penalty on 21 employees and warning letter issued to 47 employees.

No legal case related to corruption got concluded during the reporting period regarding BHEL or its employees.

## Human rights grievance mechanism

An Act to provide protection against sexual harassment of women at workplace and for the prevention and redressal of complaints of sexual harassment and for matters connected therewith or incidental thereto called "The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013", has come into force from 9th December 2013 with notification of rules by Government.

The provisions of the Act and the rules thereon are being strictly complied with. In accordance with the Act, Internal Complaints Committee has been constituted in all units of BHEL and their constitution and contact details have been hosted on unit's website. 18 Workshops / awareness programmes have been conducted in units.

In 2013-14, company received 8 complaints of sexual harassment out of which 6 have been disposed off satisfactorily. Further, no complaint of child labour / forced labour / involuntary labour / discriminatory employment has been received.

Periodic surveillance & internal audits, statutory compliance reports, legal compliance reports are some of the mechanism in place to ensure compliance with our human rights policy.



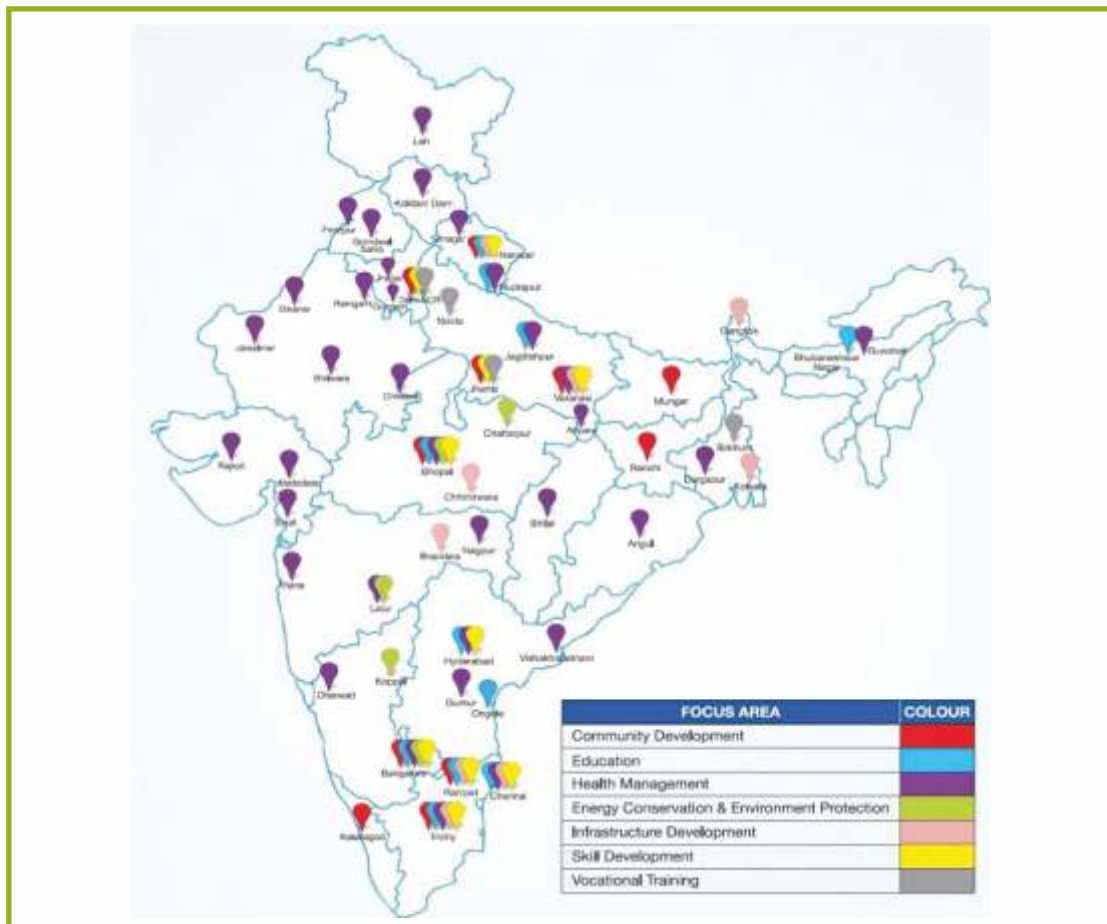
## PERFORMANCE ON SOCIETAL IMPACT

### Management Approach – Contribution towards overall wellbeing of the society

Towards addressing the second pillar of Triple Bottom Line Approach for Sustainability, BHEL has developed a CSR policy and its Mission statement on CSR & Sustainability is “To be a committed corporate citizen, alive towards its Corporate Social Responsibility”. BHEL has a well-structured CSR programme towards inclusive growth and equitable development.

It has been BHEL’s endeavour always to act as a responsible corporate citizen committed to

working for welfare of the society through inclusive growth aimed at capacity building, empowerment of communities, environment protection, development of backward regions, and up-liftment of the marginalized and under-privileged sections of the society. Company has supported various social initiatives across the country by undertaking projects in diversified areas like Community Development, Health & Hygiene, Education, Environment Protection, Disaster Management, and Talent Up gradation/Skill Development. BHEL undertakes CSR initiatives for implementation through various NGOs/Trusts/Social Welfare Societies engaged in social activities throughout the country.





There is a three-tier committee structure in the Company consisting of a Sub-Committee, Level-1 Committee and a Board Level Committee (BLC) for Corporate Social Responsibility & Sustainable Development. The above three Committees are involved in the process of undertaking, screening, review, recommendation and approval of CSR & SD projects undertaken by BHEL. The annual budget for CSR & SD is approved by Board of Directors of BHEL.

During 2013-14, BHEL spent 1.64% of PAT of the year 2012-13 towards CSR & Sustainability activities.

## Major CSR activities conducted

BHEL has clearly identified the disadvantaged, vulnerable & marginalised stakeholders in the vicinity of BHEL manufacturing units and their concerns are addressed as per CSR schemes to the extent possible. Engagement with local communities, across BHEL, is a continuous process whose impact is visible in terms of significant prosperity in the vicinity of all our establishments. Some of the major CSR initiatives taken by BHEL during 2013-14 are listed below.



## Community Development

Towards our health and hygiene programs, BHEL has supported a project called “Anhad Gram” in 25 villages of the backward district of Munger in Bihar. Through the project, following four objectives will be achieved with a view to holistically improve the living conditions of people in these villages -

- i) **Dairy development (Swadhaar):**  
The project involves setting up of a milk chilling centre for profitable management of animal husbandry in the villages. Farmers have been trained for proper management of their livestock to ensure better quality and quantity of milk.
- ii) **Bio-mass fuel (Sulndhan):** Under the program, briquettes have been produced with a burning efficiency of about 55 minutes, resulting in lesser pollution and better fuel efficiency while cooking. Production of briquettes will not only overcome acute shortage of domestic fuel in the villages and in the cities nearby but also act as a dynamic fuel for domestic consumption as well for its commercial usage.





- iii) **Women Health & Hygiene (SuKanya):** BHEL has set up a production unit for low cost sanitary napkins in the villages. The unit is being run and managed by the women SHGs of the women for their healthy & hygienic living.



- iv) **Food Processing & Preservation Unit (SuAahar):** A centre for food processing has been set up in the villages to provide value addition to the crops grown and consequent increase in income of the farmers. It will also lead to promotion of Organic farming so as to promote sustainable development of agriculture and will enhance the soil quality and capability to increase the intensity of cropping in the region.





With a view to enhance the socio-economic condition of the farmers belonging to tribal community of Khargone district, (Madhya Pradesh), BHEL has undertaken a **‘Technology based advanced agricultural interventions’** CSR project in association with Manthan Gramin Evam Vikas Sewa Samiti, an NGO working for the upliftment of marginalized farmers through nursery/crop/pest management and post-harvest efforts.



## Education

BHEL is providing school education to children in 23 schools located in the premises of its townships of various Units such as Haridwar, Jhansi, Bhopal, Ranipet, RC Puram, Hyderabad and Trichy.

BHEL supported another project of an NGO named ‘DISHA’ to promote education and skill development of disadvantaged children and youth by imparting non-formal education to 1260 street/slum children including skill training to 240 youth (both boys and girls) living in ten slum clusters of Delhi.





Another project titled “Lifting every voice of children” was undertaken by the company to provide quality education to children belonging to under-privileged/weaker economic sections of the society. The project targeted socially & economically deprived children living in resettlement colonies of Delhi. Under this project, 300 children have been imparted quality education through 10 integrated learning centres, and also provided with mid-day meals for better nutrition/health.

Carrying forward its endeavour for inclusive growth of the society, BHEL joined hands with an NGO named ‘Udayan Care’ to support higher education of girl children coming from below-the-poverty line (BPL) families. Under this programme titled ‘Udayan Shalini’, 100 brilliant girl children, who have passed class Xth, are being financially supported to pursue their education up to Post-graduation level alongside developing/enhancing their personality and employability.





\*(Foundation for Academic Excellence and Access) Education Scholarship Programme provided scholarships to 150 BPL candidates.

For the project **Sustained Graded Value Education Programmes (SGVEP)**, BHEL has entered into an agreement with highly esteemed organisation R.K. Mission to facilitate their mission of providing value based education to students of Delhi-based schools (Grade VII to Grade XI).

## Health Management

Carrying forward its commitment to providing quality health care services to the needy & deprived people and in particular, for elderly people living in remote/backward regions, BHEL continued its health operations unabated through running of the 04 Mobile



Medical Units (MMUs) in association with HelpAge India in the vicinity of remote project sites of its Power Sector Regions - PSNR, PSSR, PSER and PSWR. To cater to the healthcare needs of the elderly and needy people belonging to Guruharsahai, Ferozepur district of Punjab, another fully equipped Mobile Medicare Unit (MMU) has been provided in the area through HelpAge India.





The MMUs are fully equipped with basic diagnostic equipments such as Stethoscope, BP Apparatus, Glucometer, for measuring blood-sugar levels, weighing machine etc. including medicines for common ailments such as Hypertension, Diabetes, Arthritis, etc.

BHEL continued with its flagship CSR titled 'Heal a Soul' that involves providing medical assistance to people including children suffering from Haemophilia. The beneficiary children are from Vizag (Andhra Pradesh), Tinsukia (Assam), Bareilly (Uttar Pradesh) and Agartala (Tripura).



Aiming to provide holistic healthcare facilities and medical treatment to the rural population, BHEL continued to provide quality medical services in the vicinity of its Units at Haridwar, IVP (Goindwal) and IP (Jagdishpur) through Mobile Medicare Units of PHDRDF.





BHEL has partnered with NGO “Global Cancer Concern India (GCCCI)” for providing palliative care to terminally ill patients including cancer patients of Delhi/ NCR and Bhopal, belonging to poor background and with inadequate means of subsistence. The GCCCI has two full-fledged medical centres at Delhi (Kishangarh) and Gurgaon.



Adopting a multi-disciplinary approach towards CSR in which health and medical care take the top most priority, BHEL successfully completed its flagship “Orbit and ophthalmic plastics surgery project” in association with Sankar Foundation Eye Hospital, Vishakhapatnam (AP). The project involved carrying out 300 orbital surgeries for patients with orbital and lachrymal disorders from the states of Andhra Pradesh, Orissa and Chattisgarh.

The Company successfully undertook a noble CSR initiative on health by engaging the services of ‘Lifeline Express’ train, the ‘world’s first hospital on wheels’, to provide free medical treatment by reputed specialists to the most needy and poor people of Bundelkhand region. Around 1000 patients had been surgically operated upon for various health problems.



BHEL has provided financial assistance for setting up of one block of a model mental hospital-cum-rehabilitation centre for persons suffering with mental illnesses in Kolkata. 500 persons suffering with mental disorders will be benefitted from this endeavour. The project is being undertaken with the help of an NGO named ‘Sane & Enthusiast Volunteers Association of Calcutta’.



In order to alleviate the suffering and pain of terminally ill cancer patients, BHEL has provided financial support of Rs. 2.43 Crore to Shradha Cancer Care Trust, Haridwar towards construction of a 30-bed Hospice for providing palliative cancer care to terminally ill cancer patients.

Further, BHEL is the first CPSU to acknowledge need of eye pledging to eradicate corneal blindness from India and built an innovative program for its employees and their families to pledge eyes, which later, after their death can be donated to



beneficiary. For eradication of corneal blindness through eye donation, BHEL launched a noble and unique CSR initiative in May 2012 **"VISION to ALL - BHEL's CALL"** amongst its employees and associates as a social campaign. Till March 31, 2014, 63420 eye donation pledges were received from BHEL Employees, family members and other members of the society and a total of 1104 pairs of Eye Ball (Corneas – 2208) have been collected in order to restore the vision of corneal blind.



## Disaster Management

As an expression of its solidarity and support to thousands of people devastated by floods in the Ganges in Uttarakhand region, BHEL swiftly got into the act to provide relief and succour to them by way of food, water, medicines as well as services of mobile medicare unit (MMU). BHEL also made a humble contribution of Rs. 2 Crore to the Chief Minister's Relief fund of Uttarakhand. In addition, the employees also came forward to express their solidarity and support for the



devastated people by contributing their one day's salary amounting Rs. 6.38 Crore to PM's Relief fund.

## Environment Protection:

Emphasizing upon our commitment towards environment and sustainable use of natural resources, BHEL has undertaken a project "Adoption of 15 Villages for Sustainable use of rain water harvesting to enhance livelihood of poor small farmers" in Bijawar block of Chhatarpur district, (M.P.).



## Vocational Training

With a view to provide self-employment opportunities to girls and women and to enable them to enhance their social and economic status two programmes of "cutting and tailoring" and three of "beauty culture" for women were conducted in the nearby villages of Jhansi Unit namely Simrawari (Khailar), Gopalpura, Khajraha, Rajpura, Rasoi and Janoli villages. Nearly 250 women have been benefitted from these programs.







BHEL provided intensive training of nine months to 87 Engineering Degree & Diploma candidates of J&K at ATI, Chennai, BHEL's manufacturing units and Power Sector sites spanning all across India under the flagship programme “UDAAN”



### Skill Development:

In line with its brand image and stature, BHEL provides state-of-the-art engineering/training for talent up gradation and training in soft skills to trade apprentices, diploma and engineering degree holders. During the year 2013-14, around 8000 apprentices have been trained in various technical trades such as, Machinist, Turner, Fitter, Welder, Plumber, Blacksmith, etc.



### Infrastructure Development

BHEL has undertaken a project “Construction of Tribal Welfare School” at Bhubaneswar Nagar in Assam. The ultimate goal of this project is to educate tribal, rural and slum children so that they grow with self-esteem to take the right decisions in life.



### Promotion of Art & Culture

Alongside its commitment to reach out to the under-privileged/deprived sections of the society through its various support initiatives, BHEL entered into an agreement with Karnataka Sangeetha Sabha (KSS), for promotion of Fine Arts.

The above initiatives are an indication of how BHEL is fostering the tradition of repaying the society at large by actively participating in the welfare of local communities through numerous CSR initiatives, BHEL is undertaking socio-economic and community development programmes to promote education, improvement of living conditions and hygiene in villages and communities located in the vicinity of its manufacturing plants and project sites spread across the country. As a result of such CSR initiatives BHEL enjoys a very good reputation amongst the communities living around our factories & project sites and society at large.

Impact assessment of these CSR initiatives are being taken up after suitable time interval of completion of intervention by third party to assess the fruitfulness of the initiatives undertaken.

In BHEL, no such operations has been identified with significant actual / potential negative impacts on local communities. Our units were established way back at remote location and acted as a catalyst to spur the development of the area in its vicinity and bringing prosperity to the peripheral communities.

The company does not give contribution to any political party in any manner.

There is a Centralized Public Grievance Redressal and Monitoring Scheme in BHEL which acts as a mechanism to deal with complaints by public. During 2013-14, a total of 61 public grievance complaints were received from the general public and all the grievances were disposed of within the prescribed time of 60 days.

## Customer Value

In BHEL, customer focus is the top priority. Customer focus is part of our Vision, Mission and Values statements. The focus towards customers and end users of the products is evident from the fact that with 57% share in India's installed electricity generation capacity, BHEL equipped power plants generate nearly 65% of the electricity generated in the country testifying higher customer value proposition of its products and services. Being a customer oriented company; over the years BHEL has inculcated certain attributes that strengthen the business relation with customers.

- ❖ Offering a reliable power plant – on time commissioning at most competitive price with a high level of efficiency and good quality.
- ❖ Effective after-sales service resulting into lower life cycle cost of the product/ solutions drives customers to place repeat order on BHEL.
- ❖ TCO or Total Cost of Ownership is an attribute which is emerging as a key parameter of influence in procurement decisions. It helps customers understand the real cost of the purchasing rather than the pure acquisition and more and more customers are asking for TCO details in their Tender forms.
- ❖ BHEL executed captive power plants have a successful performance track record, high operational availability and plant load factor. To add to this,

BHEL machines have high operational flexibility beyond the Maximum continuous rated output which gives leverage to customers to meet their momentary peaking requirements.

BHEL's operations are organized around three business sectors, namely Power, Industry – including Captive Power plants, Transmission, Transportation, Renewable Energy, Defence – and International Operations. These Marketing Groups as well as the manufacturing Units and the executing agencies keep in close touch with not only the existing customers but also the new and prospective customers. Customer preferences with regard to the various options of technologies, equipment and features are understood through discussions with them, which is an on-going process. Customers' requirements are captured through:

- Proactive visits to Customers by Top Management
- Proactive interaction of Top Management with Top Policy making bodies in the country e.g. Government of India – Ministry of Heavy Industry, Ministry of Power, Central Electricity Authority, Planning Commission etc.
- Customer Perception Survey
- Participation in International Exhibitions / Conferences / Seminars
- Measures to tap latent demand through optimized solutions
- Information sharing during in Management Committee Meeting (MCM)
- Customer Complaints Resolution System
- Feedback from Collaborators
- Product / Technical Committee Meetings



- Periodic meeting with customers by business sectors, manufacturing units/ project sites
- Orders lost analysis - special focus to understand why the customer has placed/ decided to place order on the competitors.
- Keeping a track of Technological developments and its likelihood of adoption by target customers  
Continuous Environment scanning through Internet, Publications, Growth plans of the customers and economic indicators etc.
- Customer training and Customer meets
- Obtaining proactive customer feedback while developing new products and services
- Information from ICB, Tender Documents, Negotiations etc.
- Feedback during Board meetings
- Feedback from Third party inspection agencies e.g. RITES, LLYODS
- Daily/Routine interaction with customers
- Continuous interactions with customers and their consultants in the target countries for export business
- Continuous updating on statutory regulations of Target Countries, having bearing on export business
- Regular visits by Customers / Consultants to Units/ project sites etc.
- Discussions on requirement of the customers during execution of projects and incorporating the same wherever feasible.
- Continuous inputs / interactions with business associates / vendors

In view of staggered and large scale operations of BHEL (more than 150 project sites and around 180 different products), customer complaints are handled by respective business units / project divisions. The feedback of customer is taken regularly and it forms the most important input for improvement in design of our product and services.

BHEL is trying to develop more and more environmental friendly products enabling our customers to generate energy with lesser carbon footprint. Overall, the R&D efforts being put in by the organization has resulted in filing of 434 patents & copyrights during the year 2013-14, enhancing company's intellectual capital to 2,589, which are in productive use.

## Compliance

No substantiated complaint regarding breach of customer privacy and loss of customer data has been made against BHEL for its activities. No fines for non-compliance with laws and regulations concerning the provision and use of products and services have been levied.

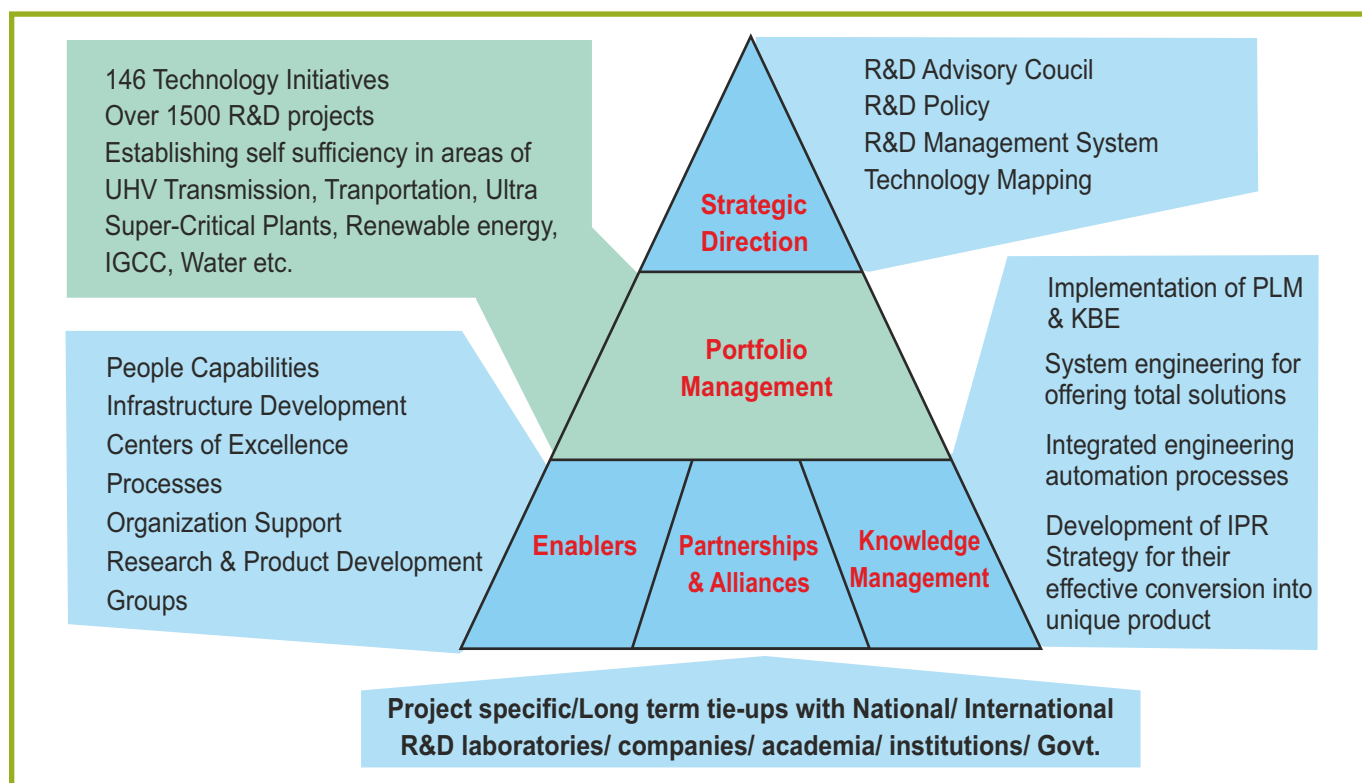
There were no legal actions for anti-competitive behaviour, anti-trust, and monopoly practices during the reporting period. Further there were no significant fines and non-monetary sanctions for non-compliance with laws and regulations levied on the company during 2013-14.

## Product Responsibility

BHEL products & services are fuel efficient, energy efficient, environment friendly and are known for world-class performance. Performance of BHEL supplied power plant equipment are driven by lower auxiliary power consumption, higher plant efficiency, lower design heat rate & better PLF - all resulting in lower life cycle cost.

Today, BHEL is deeply focused on innovation than ever before. As part of Strategic Plan 2012-17, the company is transforming its R&D and innovation in a structured and focussed manner through five pronged approach consisting of Strategic Direction, Portfolio Management, Partnerships & Alliances, Knowledge Management and Enablers.



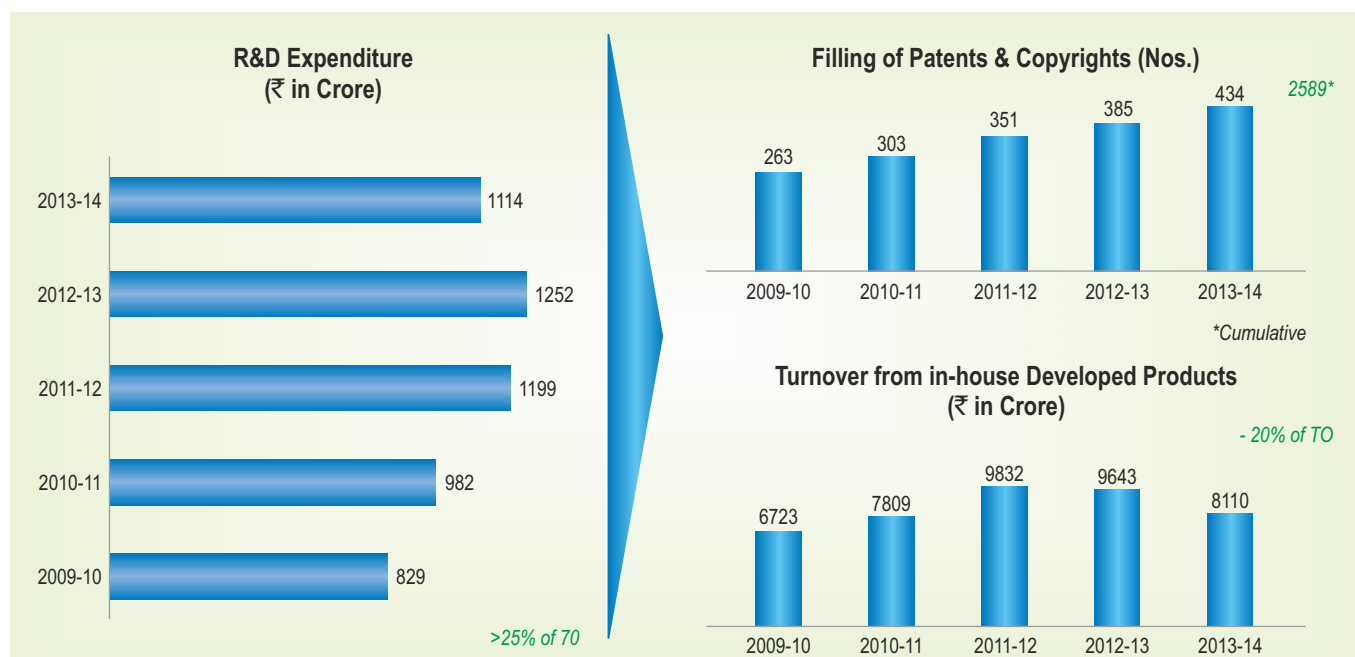


Strategic direction is provided to R&D through a policy framework under the guidance of R&D Advisory Council which has Indian Scientists of international repute. A portfolio of 146 technology initiatives comprising of 15 Mission Projects and 131 Technology Plans to build and consolidate capabilities in emerging and existing areas have been identified and are under execution.

Company is developing ultra-supercritical technology. Some of the other major technologies which are expected to perform beneficially with regards to environment over their life cycle are:

- ❖ **Clean Coal technologies** such as Integrated Gasification Combined Cycle
- ❖ CFBC and BFBC technologies for Indian coals.
- ❖ Water & gas Filtration technologies

- ❖ **Advance class Gas Turbine** - based combined cycle plant
- ❖ Carbon Capture and Sequestration – CO<sub>2</sub> capture technologies
- ❖ **Wide range of technologies for boilers** to improve efficiency through focus on Smart wall blowers (soot blowing) and Steam leak detection systems
- ❖ **Efficient hydro turbine runner profiles**
- ❖ PADO for Hydro Power Plants
- ❖ IGBT based Static Compensation Technology
- ❖ **Energy efficient of boiler auxiliaries** such as fans, ESP, boiler feed pumps
- ❖ **Photo Voltaic, IGBT based transmission, Water and Concentrated Solar Plants**
- ❖ UHV products like **765 kV/ 1200 kV** transformers, CVT, CT etc.



Greater efficiency systems will translate into achieving better life cycle costs and lesser environmental footprint of the product resulting into lesser hazard for customer health and safety.

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.

Customer Satisfaction Survey was conducted for Power Sector of BHEL by M/S IMRB International, Gurgaon. The overall Customer Satisfaction Index (CSI) of BHEL Power Sector as per survey is 67 out of 100 which showed a 3% jump from last year.

A similar Customer Satisfaction Survey was conducted for Industry Sector of BHEL by M/S TNS, India. The overall Customer

Satisfaction Index (CSI) of BHEL Industry Sector as per survey is 65 out of 100.

## Marketing Communication

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

Power Sector Marketing is following the company's practice with regard to sponsorships of events for sales promotion. 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
<b>STRATEGY AND ANALYSIS</b>				
G4-1	Statement from the most senior decision – maker of the organization about the relevance of sustainability to the organization and the organization's strategy for addressing sustainability	4-5		
G4-2	Description of key impacts, risks, and opportunities	4-5		
<b>ORGANIZATIONAL PROFILE</b>				
G4-3	Name of the Organization	9		
G4-4	Primary brands, products, and services	11		
G4-5	Location of organisation's Headquarters	11		
G4-6	Number of countries where the organisation operates	11		
G4-7	Nature of ownership and legal form	11		
G4-8	Markets served	12		
G4-9	Scale of the organisation	13		
G4-10	Details of workforce broken down by gender, employment contract, employment type etc.	15		
G4-11	Percentage of total employees covered by collective bargaining agreements	15		
G4-12	Description of the organisation's supply chain	15		
G4-13	Significant changes during the reporting period regarding the organisation's size, structure, ownership, or its supply chain	14		
G4-14	How the precautionary approach or principle is addressed by the organisation	18		





Indicator	Description	Page No. / explanation	Omissions	External Assurance
G4-15	Externally developed economic, environmental and social charters, principles, or other initiatives to which the organisation subscribe or which it endorses	15		
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	15		
<b>IDENTIFIED MATERIAL ASPECTS AND BOUNDARIES</b>				
G4-17	Entities included in the organisation's consolidated financial statements with indication of coverage in the report	25		
G4-18	Process for defining the report content and the Aspect Boundaries	25		
G4-19	Material Aspects identified in the process for defining report content	26-28		
G4-20	Description of Aspect Boundary within the organisation for each material aspect	26		
G4-21	Description of Aspect Boundary outside the organisation for each material aspect	26		
G4-22	Explanation of the effect of any re-statement of information provided in the earlier Report.	28		
G4-23	Significant changes from previous reporting periods in the Scope and Aspect Boundaries	28		
<b>STAKEHOLDER ENGAGEMENT</b>				
G4-24	List of stakeholder groups engaged by the organisation	26-27		
G4-25	Basis for identification and selection of stakeholders with whom to engage	26		
G4-26	Organisation's approach to stakeholder engagement	27		
G4-27	Key topics and concerns that have been raised through stakeholder engagement, and how the organisation	26		

Indicator	Description	Page No. / explanation	Omissions	External Assurance
	has responded to those key topics and concerns			
<b>REPORT PROFILE</b>				
G4-28	Reporting Period	29		
G4-29	Date of most recent previous Report	29		
G4-30	Reporting cycle	29		
G4-31	Contact point for questions regarding the report or its contents	29		
G4-32	GRI Content Index	88-100		
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	29		
<b>GOVERNANCE</b>				
G4-34	Governance structure of the organisation; committees responsible for decision-making on economic, environmental and social impacts	18		
G4-35	Process for delegating authority for economic, environmental and social topics from the highest governance body to senior executives and other employees	Annual Report page 99-106		
G4-36	Executive - level positions with responsibility for economic, environmental and social topics	18		
G4-37	Processes for consultation between stakeholders and the highest governance body on economic, environmental and social topics	20		
G4-38	Composition of the highest governance body and its committees	18		
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	18		



Indicator	Description	Page No. / explanation	Omissions	External Assurance
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	20		
G4-41	Processes for the highest governance body to ensure conflicts of interest are avoided and managed; disclosure of conflicts of interest to stakeholders	Annual Report page 99-106		
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	21		
G4-43	Measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental and social topics	21		
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	22		
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	22		
G4-46	Highest governance body's role in reviewing the effectiveness of the organisation's risk management processes for economic, environmental and social topics	22		
G4-47	Frequency of the highest governance body's review of economic, environmental and social impacts, risks, and opportunities	22		
G4-48	Highest committee or position that formally reviews and approves the	23		



Indicator	Description	Page No. / explanation	Omissions	External Assurance
	organisation's sustainability report and ensures that all material Aspects are covered			
G4-49	Process for communicating critical concerns to the highest governance body	23		
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	23		
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	21		
G4-52	Process for determining remuneration	21		
G4-53	How stakeholders' views are sought and taken into account regarding remuneration	21		
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)	21		
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)	21		
<b>ETHICS AND INTEGRITY</b>				
G4-56	Organisation's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics	22		
G4-57	Internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organizational integrity	24		
G4-58	Internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity	23-24		



## SPECIFIC STANDARD DISCLOSURES - Material Aspects

Indicator	Description	Page No. / explanation	Omissions	External Assurance
<b>CATEGORY: ECONOMIC</b>				
<b>ECONOMIC PERFORMANCE</b>				
G4-EC1	Direct economic value generated and distributed	35		
G4-EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	34		
G4-EC3	Coverage of the organization's defined benefit plan obligations	Annual Report page 161-165		
G4-EC4	Financial assistance received from government	35		
<b>MARKET PRESENCE</b>				
G4-EC5	Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation	35		
G4-EC6	Proportion of senior management hired from the local community at significant locations of operation	35		
<b>INDIRECT ECONOMIC IMPACTS</b>				
G4-EC7	Development and impact of infrastructure investments and services supported	36		
G4-EC8	Significant indirect economic impacts, including the extent of impacts	36		
<b>PROCUREMENT PRACTICES</b>				
G4-EC9	Proportion of spending on local suppliers at significant locations of operation	36		
<b>CATEGORY: ENVIRONMENTAL</b>				
<b>MATERIALS</b>				
G4-EN1	Materials used by weight or volume	39		
G4-EN2	Percentage of materials used that are recycled input materials	40		
<b>ENERGY</b>				
G4-EN3	Energy consumption within the organization	40		
G4-EN4	Energy consumption outside of the organization		Not reported	
G4-EN5	Energy intensity	41		

Indicator	Description	Page No. / explanation	Omissions	External Assurance
G4-EN6	Reduction of energy consumption	45		
G4-EN7	Reductions in energy requirements of products and services	47		
WATER				
G4-EN8	Total water withdrawal by source	48		
G4-EN9	Water sources significantly affected by withdrawal of water	50		
G4-EN10	Percentage and total volume of water recycled and reused	48		
BIODIVERSITY				
G4 – DMA	Aspect specific DMA	50		
G4-EN11	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areasNone 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.		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)	53		
G4-EN16	Energy indirect greenhouse gas (GHG) emissions (scope 2)	53		
G4-EN17	Other indirect greenhouse gas (GHG) emissions (scope 3)		Not reported	
G4-EN18	Greenhouse gas (GHG) emissions intensity	53		
G4-EN19	Reduction of greenhouse gas (GHG) emissions	54		
G4-EN20	Emissions of ozone-depleting substances (ODS)	54		





Indicator	Description	Page No. / explanation	Omissions	External Assurance
G4-EN21	NO <sub>x</sub> , SO <sub>x</sub> , and other significant air emissions	51		
<b>EFFLUENTS AND WASTE</b>				
G4-EN22	Total water discharge by quality and destination	50		
G4-EN23	Total weight of waste by type and disposal method	55		
G4-EN24	Total number and volume of significant spills	56		
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 internationallyThis 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		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 organization's discharges of water and runoff	56		
<b>PRODUCTS &amp; SERVICES</b>				
G4-EN27	Extent of impact mitigation of environmental impacts of products and services	56		
G4-EN28	Percentage of products sold and their packaging materials that are reclaimed by category	57		
<b>COMPLIANCE</b>				
G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.	56		
<b>TRANSPORT</b>				
G4-EN30	Significant environmental impacts of transporting products and other goods and materials for the organization's operations, and transporting members of the workforce		Not reported	
<b>OVERALL</b>				
G4-EN31	Total environmental protection expenditures and investments by type	58		

Indicator	Description	Page No. / explanation	Omissions	External Assurance
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			
ENVIRONMENTAL GRIEVANCE MECHANISM				
G4-EN34	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms	74		
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	59		
G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	70		
G4-LA3	Return to work and retention rates after parental leave, by gender	71		
LABOR/MANAGEMENT RELATIONS				
G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements	60		
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	60		
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	66		
G4-LA7	Workers with high incidence or high risk of diseases related to their occupation	66		
G4-LA8	Health and safety topics covered in formal agreements with trade unions	66		



Indicator	Description	Page No. / explanation	Omissions	External Assurance
<b>TRAINING AND EDUCATION</b>				
G4-LA9	Average hours of training per year per employee by gender, and by employee category	67		
G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	67		
G4-LA11	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category	69		
<b>DIVERSITY AND EQUAL OPPORTUNITY</b>				
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	70		
<b>EQUAL REMUNERATION FOR WOMEN AND MEN</b>				
G4-LA13	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation	70		
<b>SUPPLIER ASSESSMENT FOR LABOR PRACTICES</b>				
G4-LA14	Percentage of new suppliers that were screened using labor practices criteria	71		
G4-LA15	Significant actual and potential negative impacts for labor practices in the supply chain and actions taken	71		
<b>LABOR PRACTICES GRIEVANCE MECHANISMS</b>				
G4-LA16	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms	71		
<b>HUMAN RIGHTS</b>				
<b>LABOR PRACTICES GRIEVANCE MECHANISMS</b>				
G4-HR1	Total number and percentage of significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	72		
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	72		



Indicator	Description	Page No. / explanation	Omissions	External Assurance
G4-HR3	Total number of incidents of discrimination and corrective actions taken	72		
<b>FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING</b>				
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	72		
<b>CHILD LABOUR</b>				
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	73		
<b>FORCED OR COMPULSORY LABOUR</b>				
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	73		
<b>SECURITY</b>				
G4-HR7	Percentage of security personnel trained in the organization's human rights policies or procedures that are relevant to operations	73		
<b>INDIGINEOUS RIGHTS</b>				
G4-HR8	Total number of incidents of violations involving rights of indigenous peoples and actions taken	73		
<b>ASSESSMENT</b>				
G4-HR9	Total number and percentage of operations that have been subject to human rights reviews or impact assessments	73		
<b>SUPPLIER HUMAN RIGHTS ASSESSMENT</b>				
G4-HR10	Percentage of new suppliers that were screened using human rights criteria	72		
G4-HR11	Significant actual and potential negative human rights impacts in the supply chain and actions taken	72		
<b>HUMAN RIGHTS GRIEVANCE MECHANISMS</b>				
G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms	73		



Indicator	Description	Page No. / explanation	Omissions	External Assurance
<b>SOCIETY</b>				
<b>LOCAL COMMUNITIES</b>				
G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	74		
G4-SO2	Operations with significant actual and potential negative impacts on local communities	74		
<b>ANTI CORRUPTION</b>				
G4-SO3	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified	72		
G4-SO4	Communication and training on anti-corruption policies and procedures	73		
G4-SO5	Confirmed incidents of corruption and actions taken	73		
<b>PUBLIC POLICY</b>				
G4-SO6	Total value of political contributions by country and recipient/ beneficiary	83		
<b>ANTI COMPETITIVE BEHAVIOUR</b>				
G4-SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes	85		
<b>COMPLIANCE</b>				
G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	85		
<b>SUPPLIER ASSESSMENT FOR IMPACTS ON SOCIETY</b>				
G4-SO9	Percentage of new suppliers that were screened using criteria for impacts on society	71		
G4-SO10	Significant actual and potential negative impacts on society in the supply chain and actions taken	71		
<b>GRIEVANCE MECHANISMS FOR IMPACTS ON SOCIETY</b>				
G4-SO11	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms	73		

Indicator	Description	Page No. / explanation	Omissions	External Assurance
<b>PRODUCT RESPONSIBILITY</b>				
<b>CUSTOMER HEALTH &amp; SAFETY</b>				
G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement	84		
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	85		
<b>PRODUCT &amp; SERVICE LABELING</b>				
G4-PR3	Type of product and service information required by the organization's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements	85		
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	86		
G4-PR5	Results of surveys measuring customer satisfaction	87		
<b>MARKETING COMMUNICATIONS</b>				
G4-PR6	Sale of banned or disputed products	87		
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	87		
<b>CUSTOMER PRIVACY</b>				
G4-PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data	87		
<b>COMPLIANCE</b>				
G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	87		



## SUSTAINABLE DEVELOPMENT POLICY

We at BHEL offer products, systems and services designed to benefit the society. We are committed to undertaking practices that social and ecological economic, the meet Sustainable of tenets responsibility Development.

We will work with all our stakeholders to ensure continuous improvement in the Sustainable Development of our operations within the ambit of the guidelines issued by Government of India.

## ENERGY MANAGEMENT POLICY

BHEL is committed to continuously enhance energy efficiency in all its activities, products and services through state-of-the-art energy efficient eco - friendly technologies and leverage energy efficiency in its operations by adopting energy conservation techniques with the participation of all employees.

## CORPORATE HEALTH, SAFETY & ENVIRONMENT POLICY

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 Policy to all employees and interested parties
- Coordination with concerned Government agencies / regulatory bodies engaged in Occupational Health, Safety & Environmental activities
- This policy shall be made available to all employees and interested parties.





# Bharat Heavy Electricals Limited

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