भा एच ई एल
BHEL
Maharatna Company

SUSTAINABILITY REPORT
2014-15

बी एच ई एल
BHEL
Maharatna Company

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

Contents

Chairman & Managing Director's Message

Dear Stakeholders,

It gives me immense pleasure to place before you BHEL's Annual Sustainability Report covering the performance of the company for the reporting period 2014-15. The report captures the snapshot of the journey which our organization has undertaken while treading the path of Sustainable Development during the reporting period.

For BHEL, Sustainability is about preserving our natural environment which is the source of our survival & well-being while creating value for the stakeholders in a responsible and socially acceptable manner. For almost fifty years of its existence, company has been leveraging technology and innovation for providing products, systems and services to its customers and enabling 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".

Energy & infrastructure, being the fulcrum of economic development, would continue to depict a rising trend till demand-supply deficit is addressed in its entirety. Energy security and climate change issues are determining the future course of development. This represents a huge opportunity to be leveraged by our company with its wide range of quality products & services. Being a major power plant equipment manufacturer, BHEL is quite aware of its huge responsibility towards providing world class products and services to its customers so as to help them generate power in a sustainable manner and minimise environmental footprint over the entire life cycle of the plant. To address this responsibility, the company has adopted R&D and technology development as key driver as a part of its strategy. We have maintained R&D expenditure at plus 2.5% of the

turnover for more than 5 years. The company filed 453 patents and copyright applications during the year 2014-15, enhancing the company's intellectual capital to 3010. A total of ₹ 7,300 Crore of the company's total turnover has been achieved from its in-house developed products and services.

BHEL's resolve to focus on clean coal technologies and chart a Sustainable low carbon growth path is manifested in several dimensions:

- BHEL manufactured & commissioned India's first 660 MW (SG & TG) and 800 MW (SG) sets with supercritical technology resulting in ~11% reduction in CO_2 emissions, less fuel consumption & ultimately leading to lower cost for its customers.
- In-house developments like Fuel Flexible Boiler, portfolio of more efficient UHV Transmission systems & products and low lifecycle cost of equipment are facilitating use of affordable and environmentally sustainable energy systems.
- In the field of Photovoltaics, BHEL has generated expertise in the critical parts of the value chain, viz., Silicon Wafer to Cell, Cell to PV Module, Erection, Commissioning and Operations & Maintenance of MW-size Solar PV power plants. BHEL has installed a 5 MW_P grid interactive solar power plant at its Boiler Auxiliaries Plant, Ranipet which is powering operations & ensuring CO_2 mitigation of around 5600 MT CO_2- e per year. Another 1.5 MW_P PV plant is being commissioned at its Heavy Power Equipment Plant, Hyderabad.
- The company set a new record in its Solar Photovoltaic (PV) business in a single year by supplying 50 MW_P of SPV modules including solar power plants commissioned for NTPC Talcher and NTPC Unchahar for 10 MW each.
- 2014-15 marked turnaround in Indian Hydropower sector with addition of 736 MW to Central utilities, highest in a decade. This entire 736 MW of Hydroelectric projects were successfully commissioned by BHEL.

Amidst the difficult external economic and business environment, BHEL continues to face challenges in the current year also. Nevertheless, the company has developed considerable resilience to leverage its engineering strength and manufacturing prowess to regain growth momentum in next phase of Indian economic growth.

For BHEL, it is imperative to focus on newer areas to meet the challenges of a changing business scenario while continuing development in traditional areas of business and thus 'Creating the BHEL of tomorrow'.

(Atul Sobti)

Message
From Director (HR)

Dear Stakeholders,

Sustainability is about creating wealth for its stakeholders through achieving growth which is sustainable, attained in a manner which is socially acceptable while remaining within the realms of the assimilative capacity of our ecological environment.

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.

BHEL has ingrained the triple bottom line approach for Sustainable Development in its Business processes. It has been creating value for its stakeholders since inception. Its R&D efforts have always been directed towards development and diffusion of technologies which are having reduced environmental footprints. BHEL has laid down an elaborate enabling framework for putting concerted efforts towards at strategic as well as ground level day to day work. 'Sustainable Development Policy' is the guiding force for all our CSR & Sustainability activities and execution at unit level is steered by Nodal officer for Sustainability.

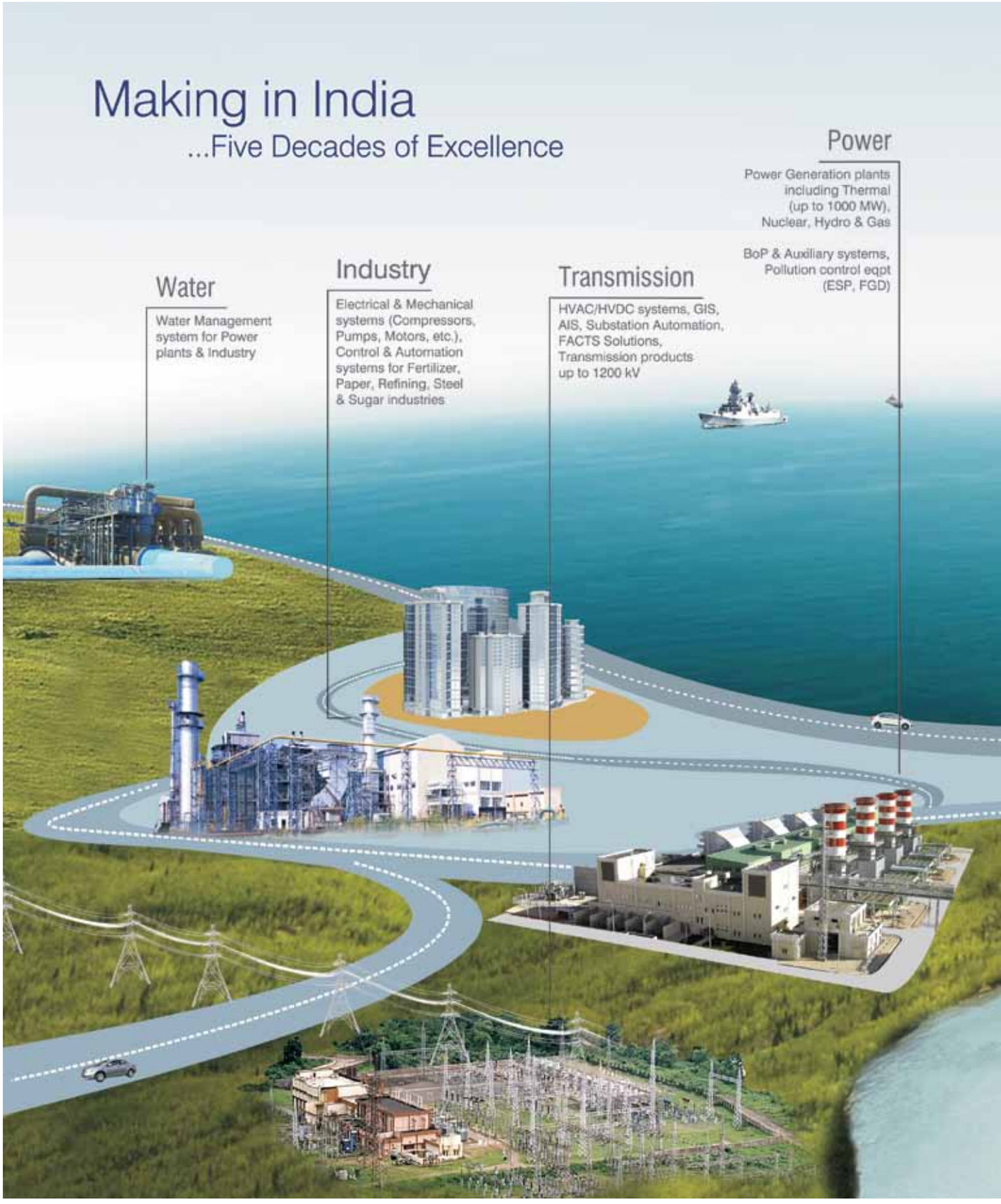
To address the bottom line of Environment, key projects & initiatives are undertaken in the areas of Renewable energy generation through Solar Power Plants & other solar systems, tree

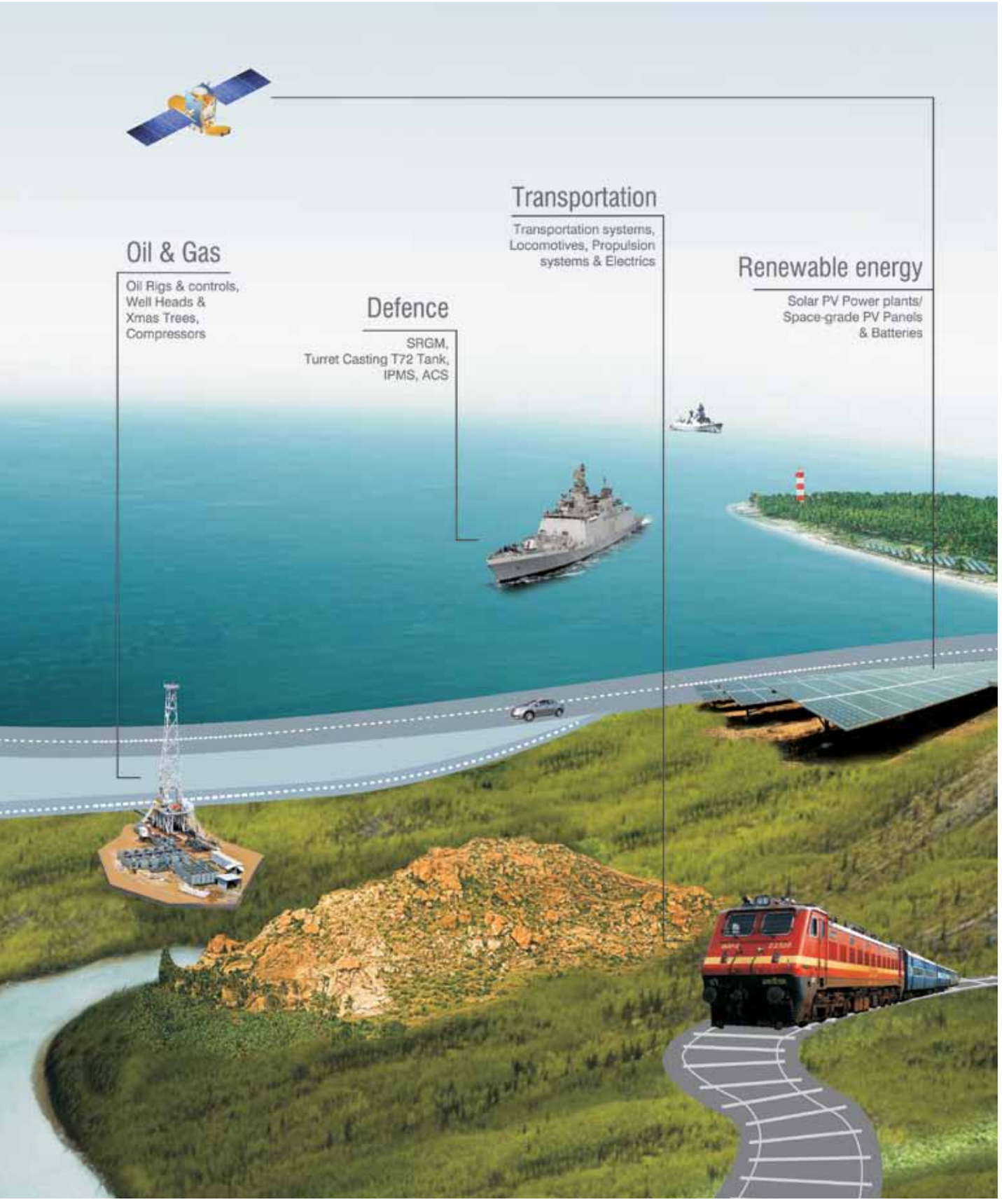
plantation, water conservation, energy efficiency, workplace environment improvement, Resource Conservation, etc. to help achieve the ecological sustainability throughout our operations. As a part of its strategic plan 2017, BHEL is enhancing the use of clean energy at our units / sites through usages of PV based street lights & solar water heating systems, installation of roof-top and grid interactive solar power plants (KW & MW scale) and many such systems are already there in place. A 5 MW_P Solar Power plant at BAP Ranipet unit is hallmark in our efforts towards ensuring Environmental Sustainability and a 1.5 MW_P solar power plant is shortly going to be commissioned at HPEP Hyderabad which will further boost our efforts in moving towards sustainable energy mix in our operations.

To address second bottom line of Society, BHEL has a structured CSR programme steered by The Board of Directors of BHEL with major focus of inclusive growth aimed at capacity building, empowerment of communities, environment protection, development of backward regions, and upliftment of the marginalized & under-privileged sections of the society.

The specific efforts made towards addressing the tenets of Sustainable Development particularly during 2014-15 is captured and elaborated in this Sustainability Report of BHEL. This report is the result of many concentric and dedicated efforts of Corporate HSE team & Unit level Nodal Officers for Sustainability. I invite your feedback for making our future Sustainability Report more robust.

(D Bandyopadhyay)


Making in India
...Five Decades of Excellence
Power
Power Generation plants including Thermal (up to 1000 MW), Nuclear, Hydro & Gas
BoP & Auxiliary systems, Pollution control eqpt (ESP, FGD)
Industry
Electrical & Mechanical systems (Compressors, Pumps, Motors, etc.), Control & Automation systems for Fertilizer, Paper, Refining, Steel & Sugar industries
Transmission
HVAC/HVDC systems, GIS, AIS, Substation Automation, FACTS Solutions, Transmission products up to 1200 kV
Water
Water Management system for Power plants & Industry


Oil & Gas
Oil Rigs & controls, Well Heads & Xmas Trees, Compressors
Defence
SRGM, Turret Casting T72 Tank, IPMS, ACS
Transportation
Transportation systems, Locomotives, Propulsion systems & Electrics
Renewable energy
Solar PV Power plants/ Space-grade PV Panels & Batteries

Overview Of The Report

Key Opportunities And Threats

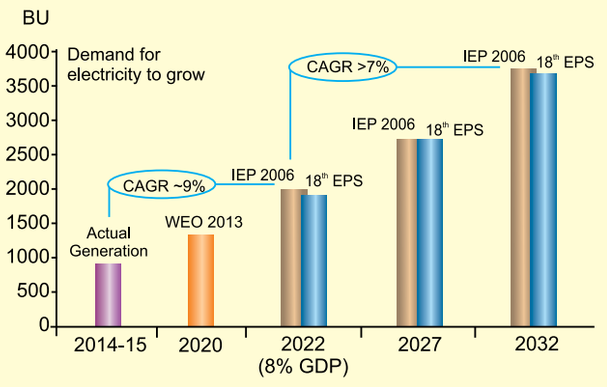
The global economy continued to expand during 2014 across major countries and regions at a moderate but an uneven pace and still shrouded in uncertainty. The recurring theme is that the global economy is struggling to generate the desired traction necessary for maintaining a consistent growth trajectory. Economy of United States, is expected to improve in 2015 with real GDP growth projected at 3.6% aided by improving labour and housing market conditions. Economic condition in Euro region remain weak although some pick-up is expected supported by lower crude prices and the depreciation in the euro as well as increased bank lending. Japan too, is still struggling with growth contraction.

Potential spill overs from Geopolitical tensions and the weaker-than-expected performance of developed economies and domestic supply-side constraints have impacted the emerging economies over the past year. Geopolitical tensions in Iraq, Libya, Yemen, the Syrian Arab Republic and Ukraine have already had economic impacts at the national and sub-regional levels. Most of the world's major oil-producing countries are still grappling with investment decisions, and subdued output despite modest rebound after the almost collapse in international crude oil prices.

In this context, even with increase in oil production by the United States to render resilience to the global oil market, major downside risk due to sudden and drastic stoppage of exports by major supplier countries cannot be ruled out.

With 301 billion tonnes of coal reserves, yet, India has been struggling to increase coal supplies to meet the growing requirements of its power and other industries. Fuel availability for new projects is still a concern. E-auction / allocation of coal blocks and Government's objective to double domestic coal production by 2020 is likely to improve the prospect of fuel availability for existing projects. Land acquisition remains a complex issue as the existing and new projects still await clearances affecting take-off. Evacuation infrastructure, another issue, is critical to meet the 1.5 billion tonnes production target by 2020.

Indian Power Sector: Opportunities Unlimited



WEO: World Energy Outlook, IEP: Integrated Energy Policy, EPS: Electric Power Survery, CEA

The subdued growth of the core industries has remained a drag on industrial production. Eight core industries, constituting 38% in Index of Industrial Production, have decelerated further after registering only 3.59% Y-o-Y growth, the lowest in the last five years, due to a decline in crude oil, natural gas production and steel.

Further, Climate Change is going to be one of the foremost factors impacting the

industry in near future. With the spurt in unexpected climate events across the world, global population has started experiencing its adverse impact which will compel various countries to commit to reduction in emissions. Further, acceptability of the fact that global warming is majorly human induced will provide the additional thrust to reduce the emissions further. This trend presents a lot of opportunities for companies like BHEL and at the same time, presents many challenges, particularly related to 'Green technology' development.

But economy is experiencing a turnaround and the initiatives initiated by the new government would act as enablers for resolution of impending issues. Allocation of Coal Blocks through e-auction, rationalization of gas prices, Single Window Concept, Coal Block Swapping, etc. are likely to improve the fuel availability for existing power projects.

Demand for electrical transmission equipment is expected to improve with more and more generation, transmission and distribution projects taking off aided by the Distribution reforms such as feeder segregation and separation of content and carriage in distribution. The Government has proposed 100 GW capacity addition in solar and 60 GW in wind by 2022. Transportation sector is likely to see a lot of traction in the days to come. The positive steps taken by the government are likely to translate into more business opportunities and finalization of several new opportunities in the near and medium term. Moreover, the "Make in India" initiative by the Government is poised to catapult Indian Industry into a new phase of growth trajectory by strengthening business confidence and investment climate.

The overall business scenario is improving at a moderate pace and BHEL would certainly leverage the opportunities arising out of the next phase of economic growth.

Positioning For The Future

With a sturdy foundation of 50 illustrious years of engineering excellence, BHEL has been the fore-bearer of India's success in achieving self-sufficiency in the indigenous manufacture of heavy electrical equipment. BHEL's 55% share in India's total installed capacity and 62% share in the country's total generation from thermal utility sets (coal based) as of March 31, 2015 stand testimony to its valuable contribution towards nation building.

Amidst the difficult external economic and business environment, BHEL continues to face challenges in the current year also. Nevertheless, the company has developed considerable resilience to leverage its engineering strength and manufacturing prowess to regain growth momentum in next phase of Indian economic growth. Overall business scenario is improving and the 'Make in India' initiative of Government of India is poised to drive the manufacturing sector into a new phase of growth.

To enhance the share of business in power sector, company has been adopting two pronged strategy; focus on EPC business and enlarging scope of offer. BHEL is expanding its portfolio by adding Flue-Gas Desulfurization (FGD), Water Management system, Air Cooled Condenser, and other Balance of Plant (BoP) systems. Company is fully harnessing potential in Spares & Services area and forging partnerships with other value chain partners. Increasing level of indigenization in Supercritical Technology and development of Adv. Ultra Supercritical Technology are major strategies in Power Sector.

- Diversification of business has been the focus of the Management in recent years so as to enhance share of Industry Segment in business mix. BHEL has taken various initiatives in recent past to expand its presence in Transportation (Rail), Solar, Defence and Transmission business areas, both by way of investments in existing facilities and by exploring new business models with focus on collaboration with value chain partners. BHEL has demonstrated its capability to design and offer all variants of 765 kV class Transformers and Shunt Reactors and is well positioned to capitalize on the premium 765 kV voltage segment

- BHEL's products and systems are technology intensive and thus, the company has adopted R&D and technology development as the central driver for implementing its strategy. We have maintained R&D expenditure at plus 2.5% of the turnover for more than 5 years. Recently the company has indigenously designed and developed Fuel Flexible Boiler which is capable of blending & firing any percentage mix of imported & indigenous coals. BHEL has successfully developed, manufactured and commissioned India's first 'Phase Shifting Transformer' (PST) at Kothagudem TPS in Telangana. The PST improves transmission efficiency and is an outstanding solution for smart grid ensuring multiple benefits for transmission networks

- BHEL will continue to pursue its key strategy of accelerating project execution. Company is also focusing on intermediate milestones,

15 MW SPV Plant for NTPC Singrauli commissioned by BHEL

delivery cycle reduction, central monitoring system and deployment of additional Tools & Plants. The significant achievements in execution include commissioning of first indigenously manufactured 660 MW supercritical thermal set at NTPC Barh, commissioning of first indigenously manufactured 800 MW supercritical boiler at APPDCL Krishnapatnam. We have also commissioned 736 MW of hydro projects during 2014-15. Notably, this is 100% of hydro projects commissioned in India during the year and also the country's highest in last 10 years

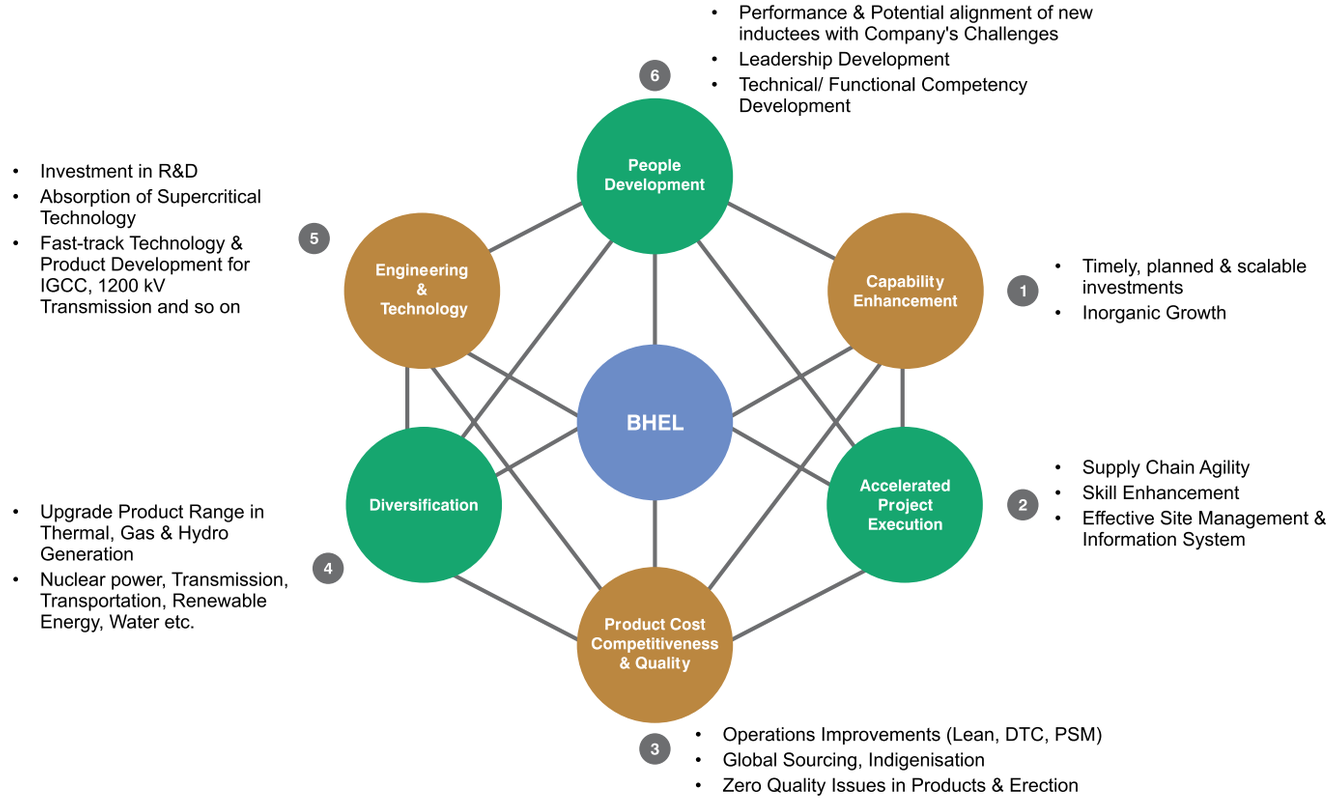
- To address prevailing pricing pressures, company is focusing on cost optimization measures in different areas of operations through competitive buying, increased localization, design/layout optimization, supply risk mitigation, IT applications, operations improvement and better employee productivity

- BHEL has been in the field of Photovoltaics, a strategically important area of non-conventional energy and has been

contributing to the national effort for developing and promoting renewable energy based products on a sustained basis. The company has generated expertise in the critical parts of the silicon value chain, viz., Silicon Wafer to Cell, Cell to PV Module and in EPC & O&M of MW-size Solar PV power plants offering turnkey solutions for Solar PV plants. BHEL has a dedicated R&D group in the area of semiconductor materials, Nano-and thin-film devices at their plants in Hyderabad and Gurgaon

- In line with the growing aspirations of millennial generation of the company, the People Development strategy of BHEL is focusing on developing each person's competencies in alignment with business plans through implementation of initiatives like e- learning modules for developing Leadership competencies in association with Harvard Business School, performance linked pay, career planning and succession planning
- BHEL will continue to build on its strengths through focus on Capability Enhancement, Project Execution, Cost Competitiveness & Quality, Diversification, Engineering & Technology, and People Development as envisaged in 6-Point agenda to harness the opportunities arising out of improved economic and business conditions

Six-Point Agenda



Report Profile

This report is the 4th 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 2014-15. Previous year report for 2013-14 was also prepared in line with GRI-G4 guidelines.

BHEL has started its journey of compilation and publication of its Sustainability Performance in the form of Environmental Sustainability report in 2011-12. The frequency of the report is annual. Current report covers the Sustainability performance of the company for the period from April 1, 2014 to March 31, 2015 and is an attempt to give the reader a holistic view of our Sustainability Performance for 2014-15 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 maintain comparability with the last reports, it has not been included in the present report. The data for this unit will be included in our next sustainability report for 2015-16.

For the reporting purpose, data has been captured through SAP system wherever applicable. Otherwise the data have been taken from reliable sources, compiled at unit level and sent to corporate office for preparation of this 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.

2x14 MW Nyabarongo Hydro Electric Project commissioned by BHEL in Rwanda

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

At present the report is not being externally assured. The reporting principles and methodology are in accordance with the "Comprehensive" option of GRI G4 reporting framework.

Organizational Profile

About The Organisation

Forging ahead on the sturdy foundation of 50 illustrious years of engineering excellence and embracing the glorious next phase of its growth, BHEL is an integrated power plant equipment manufacturing and one of the largest engineering and manufacturing company of its kind in India engaged in the design, engineering, manufacturing, 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 (Railways), Renewable Energy, Oil & Gas and Defence with over 180 products offerings to meet the needs of these sectors. BHEL has been the solid bedrock of India's Heavy Electrical Equipment industry since its evolution in 1964.

BHEL's growth has been synchronous with achieving self-sufficiency in indigenous manufacturing of heavy electrical equipment. BHEL has a mammoth 20,000 MW per annum capacity for power plant equipment manufacturing in the country. Adding to its achievements, BHEL has joined the elite club of select global giants having an installed base of over 150 GW of power generating equipment globally. BHEL's 55% share in India's total installed capacity and 62% share in the country's total generation from thermal utility sets (coal based) as of March 31, 2015 stand testimony to its valuable contribution towards nation building.

4x500 MW Simhadri STPS commissioned by BHEL

The high level of quality & reliability of BHEL products 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 (ISO 9001:2008), Environmental Management Systems (ISO 14001:2004) and Occupational Health & Safety Management Systems (OHSAS 18001:2007).

2 Units of 200 MW each of Koldam HEP commissioned by BHEL during the year

BHEL has been adept at transforming itself in line with the market requirements throughout 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 and the current role of sustaining growth through diversification. BHEL owes its dexterity to the strong culture of strategic planning initiated in 1970 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, Defence, Water & Renewables is the strategy adopted to maintain a balanced portfolio of offerings. This strategy of diversifying and capitalizing new business opportunities stems from the commitment to innovation led growth which is an indispensable part of BHEL's business model. R&D focus of the organization is quite diverse ranging from advance ultra-supercritical thermal power plants to IGCC power plants and grid connected renewable energy systems.

800 MW Turbo Generator rotor under assembly at HEEP, Haridwar

BHEL's greatest strength is its highly skilled and committed workforce of about 45,000 employees who have been the cornerstones of BHEL's journey ensuring success. 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 with its social initiatives aimed at Community Development, Health & Hygiene, Education, Environment Protection, Disaster Management, Promotion of Talent, Skill development, etc.

BHEL offers sustainable solutions to its customers throughout the entire operational lifecycle of the power plants by offering engineering and technology inputs for reducing greenhouse gas emissions, water consumption, less auxiliary power consumption and less fuel requirement. BHEL manufactured & commissioned India's first 660 MW (SG & TG) and 800 MW (SG) sets with supercritical technology.

BHEL manufactures a wide range of products and systems for thermal, nuclear, gas and hydro-based utility power plants to meet customer's power generation requirement. BHEL has proven turnkey capabilities for executing power projects from Concept to Commissioning and offers EPC services. **Power generation equipment includes** boiler, turbines, generators of different power ratings and other auxiliary products, etc.

The Company has proven expertise in Plant Performance Improvement and offer its services through Renovation, Modernization and Uprating of a variety of power plant equipment, besides specialized know-how of residual life assessment, health diagnostics and life extension of power plants.

For transmission of generated electricity to load centers, company manufactures transformers, capacitors, insulators of different ratings, etc. for power utilities in Transmission & Distribution business. Executes EHV & UHV substations ranging from 132 kV to 765 kV & HVDC converter stations up to ±800 kV.

Company also caters to different industries like fertilizers, cement, refineries, etc. for their capital goods requirement. BHEL supplies system and individual product including a large number of Captive power plants, Centrifugal compressors, Drive Turbines, Industrial boilers and auxiliaries, waste heat recovery boilers, Gas turbines, Pumps, Heat exchangers, Electrical machines (motors), Valves, Oil rigs, etc. to a number of industries other than power utilities.

Most of the drives of the Railways, whether conventional DC or state-of-the-art AC or diesel

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Vision

A global engineering enterprise providing solutions for a better tomorrow

Mission

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

Sustainable 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 capitalization crossed ₹ 100,000 Crore in 2007

Crossed Turnover mark ₹ 50,000 Crore in 2012-13

World of BHEL

The Gentle Giant

An Indian Maharatna CPSE

One of the largest engineering & manufacturing companies in India serving core sectors of economy viz.

- Power
- Industry

Transmission/Transportation/Oil & Gas/Renewables/Water/Defence/ Industrial Products-E&M

Major Integrated Power Plant Equipment Manufacturer in the world with 20,000 MW pa manufacturing capacity

17 Manufacturing Units, 1 Subsidiary, 6 Joint Ventures, 8 Service Centres & Infrastructure to deal with 150+ project sites

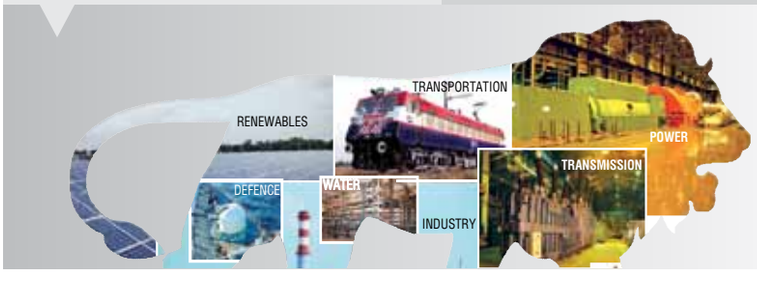
Global Footprints

References in 77 countries

Offices in 6 countries

Contracted power plant equipment around 17,000 MW

Commissioned 4 power plants in four overseas markets for first time in a single year



Did you know?

3 out of 5 houses in India are supplied power generated from BHEL sets

55% of India's nuclear power generating capacity (conventional island) installed by BHEL

All Indian satellites launched by ISRO are equipped with BHEL supplied solar panels since 2002 & batteries since 2005

BHEL is largest supplier to Indian Railways for rolling stock propulsion equipment

Only domestic supplier (outside IR) to Indian Railways for Locomotives

BHEL is energizing India's North-East with commissioning of highest rating (3X250 MW) coal-based power plant in Assam

Indian Navy's INS Kolkata-D63 Missile Destroyer is equipped with BHEL's Super Rapid Gun Mount and Auxiliary Control systems

World's largest ±800 kV, 6000 MW Multi-terminal HVDC NE-Agra Transmission project under execution by BHEL

All Power Stations awarded by Ministry of Power for early completion in 2013-14 were contracted on BHEL

Sudan's largest 500 MW Kosti Thermal Power Plant commissioned by BHEL

Powering the industry

500,000+ MVA transmission equipment supplied

30000+ AC machines supplied, largest Indian manufacturer

130+ MW- cumulative shipments of PV cells, modules and systems

360 Electric Locos Supplied to Indian Railways & other industries

375+ Compressors & 88+ Oil drilling Rigs Supplied

40+ Oil Rigs- Refurbishment & Upgradation completed

30+ SRGMs supplied till date

Innovation

R&D Expenditure >2.5% of Turnover- highest in Indian engineering field

14 Centres of Excellence

More than 1 patent/copyright filed per day

Total intellectual capital: 3010

In-house R&D Centres of 12 Manufacturing units/Divisions recognized by DSIR

Valuing people

Participative Management Culture through JCM, Plant Council, Shop Council since 1973

~ 75% Engineers amongst Executives

~ 1500 female employees inducted in the last ten years

Less than 1% attrition rate

4+ days of training accorded to an employee per year

1000 Executives undergoing leadership training by Harvard Manage Mentor, an affiliate of Harvard Business School

Energizing India

Built India's capability in power plant equipment manufacturing

157+GW power generating equipment installed till date

100+GW coal based utility installations in the country

Commissioned country's first indigenously manufactured 800 MW boiler at APPDCL Krishnapatnam-2

Commissioned country's first 660 MW indigenously manufactured supercritical set at NTPC Barh-5

Social onus

Committed to Principles of UN Global Compact

Signatory to Integrity Pact of Transparency International

Providing financial support for education of more than 20,000 school children

'Vanavil'- 5 acres eco-friendly park developed at BHEL Trichy having trees with botanical value

More than 75,000 eye donation pledges under "Vision to All-BHEL's Call"

Preserving Cultural heritage - Around 700 steel wheels supplied by BHEL for temple chariots in Tamil Nadu & Refurbishing Swatantrata Sangram Sangrahalya in Red Fort, Delhi

Heralding the change towards climate

Supercritical technology resulting in ~11% reduction in CO_2 emissions, less fuel consumption & lower cost to customers

Developed Fuel Flexible Boiler for operational flexibility & uninterrupted generation of electricity

Developed more efficient UHV Transmission systems and products (765 kV AC, 800 kV DC & 1200 kV AC)

Commissioned India's first 'Phase Shifting Transformer' (PST) at TSPGCL Kothagudem improving transmission efficiency

Average efficiency of Solar Photovoltaic cell increased to 18.75%

5 MWp grid interactive solar power plant at BAP, Ranipet powering unit operations & CO_2 mitigation ~ 5600 MT CO_2-e per year

Low lifecycle cost of equipment facilitating affordable and environmentally sustainable energy systems

powered, are equipped with BHEL's traction propulsion system and controls. The range of products supplied by BHEL includes traction motors, traction generators/alternators, transformers, substation equipment, vacuum circuit breakers, locomotive bogies, smoothing reactors, exciters, converters, inverters, choppers and associated control equipment. Besides company also manufacture locomotives, EMUs, IGBT based propulsion drives, etc.

BHEL executes EPC projects for grid interactive and standalone PV power plants of applications kW to MW rating, Space Grade Solar Panels and Space Grade Batteries. Company manufactures and supplies a number of solar water heating systems, solar photo-voltaic (SPV) systems for both Domestic and Industrial applications.

Provides Turnkey Solutions for Water Treatment Systems including Reverse Osmosis (RO), Effluent Treatment, Membrane based Sewage Treatment Plants & systems for Zero Liquid Discharge, etc.

BHEL is supplier of strategic equipment to Indian defence forces including Super Rapid Gun Mount, Integrated Platform Management System for Naval Ships, Thermo pressed components, ATVP equipment, etc.

BHEL also executes power projects in International market. Company has a 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, UAE, Bhutan, Egypt, New Zealand, etc.

The future is filled with both exciting opportunities & gruelling challenges. BHEL has embraced the new business opportunities by expanding its offerings and enhancing competitiveness seeking to realize its long term vision. Creating new business avenues and maximizing utilization of available infrastructure will be the key to future growth and stakeholders' wealth enhancement.

Primary Products and Services

BHEL offers 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 and has supplied sets of 660/700/800 MW based on supercritical technology. The key products that the company manufactures are - Steam Turbines, Generators, Boilers & accessories for Thermal power plant; Locomotives, propulsion equipments, traction motors/alternators, Transformers, VCBs for Transportation Sector; Power & instrument transformers, reactors, switchgear, capacitors, insulators, FACTS & HVDC system for Transmission segment. For detailed list of products which is being made by BHEL, the reader may refer to page 263-270 of Annual report 2014-15 available on www.bhel.com.

Power

- Contributes to around 80% of the total revenues
- Proven capabilities to execute thermal power projects on EPC basis

Products:

- **Thermal:** Entire range up to 800 MW ratings including supercritical sets of 660/ 700/ 800 MW
- **Gas:** Advanced class gas turbines up to 289 MW (ISO) for open and combined cycle.
- **Hydro:** Electro-mechanical Package up to 250 MW
- **Nuclear:** TG sets 220/ 235/500/540/700 MW

Transmission

- Offers wide range of transmission systems and products
- Present in UHV, EHV, HVDC and GIS segments

Products:

- Power Transformers (400 kV, 765 kV, 1200 kV)
- Instrument Transformers
- Shunt Reactors • Switchgears • Capacitors
- Control & Protection Equipment • HVDC terminals
- Flexible AC Transmission

Transportation

- Offers system range including traction machines, Electric Locomotive (AC/DC), EMU Coaches and traction drive systems
- BHEL's IGBT propulsion equipment accounts for majority share of IGBT based locomotives in Indian Railways
- More than 70% of Indian Railways equipped with traction equipment built by BHEL

Products:

- Locos and EMU
- Electric Rolling Stock – AC & DC
- IGBT based propulsion drives
- Electrics for Urban Transportation System

Primary Products & Services

Non-Conventional Energy Source

Water Management:

- Offers turnkey solutions for industrial and power plant water systems

Solar PV:

- Offers EPC solutions from concept to commissioning for PV Power Plants
- Manufacture space grade solar panels and space grade batteries

Products:

- Solar cells and modules
- 500 kVA Power Conditioning Unit (PCU) for Solar PV Plants

Defence

- Contributing strategic equipments to Indian defence forces for over 20 years

Products:

- Super Rapid Gun Mount
- IPMS for Naval Ships
- Turret Casting for T72 Tanks
- Equipments for naval ships

Industrial Products & Systems

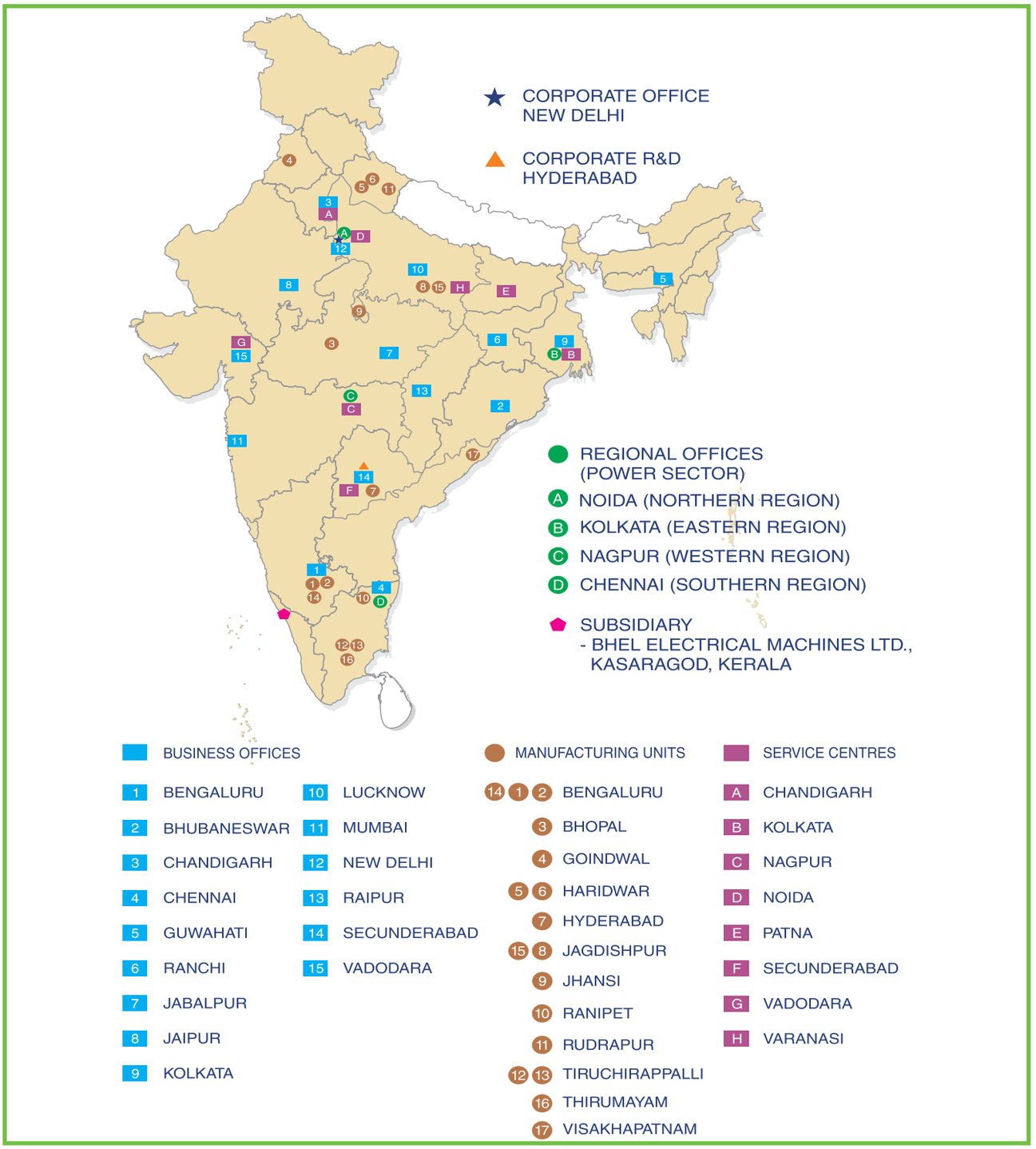
- Designs, manufactures and services various types of onshore rigs since 1975
- Capability to manufacture onshore deep drilling rigs up to a depth of 9,000 meters
- 86+ oil drilling rigs supplied

Products:

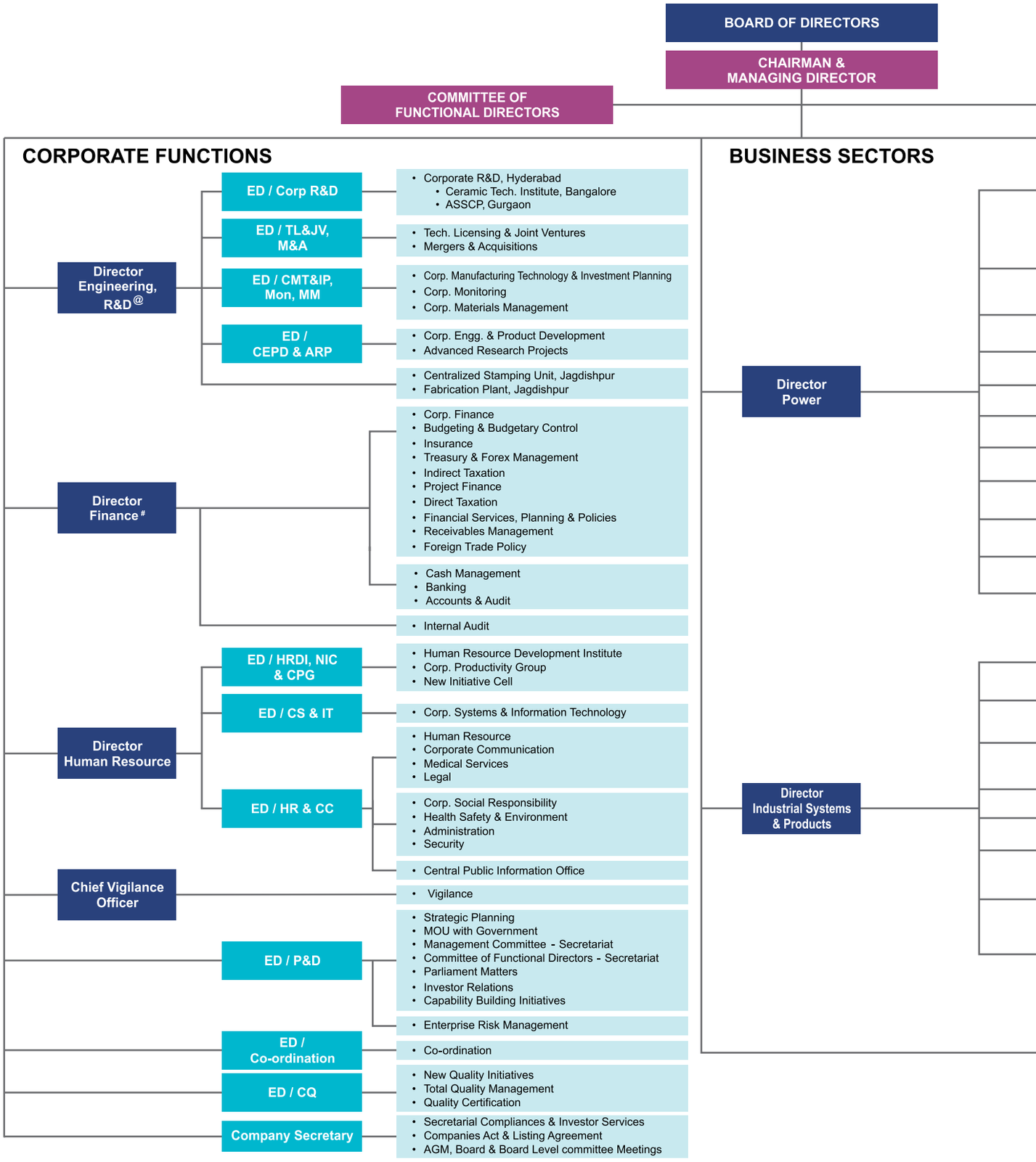
- Oil Rigs
- Well Head & Xmas Trees
- Fabricated Equipments & Boiler Feed Pumps
- Compressors
- AC Machines
- Valves

Location of Organization

A widespread network of 17 Manufacturing Divisions, 2 Repair Units, 4 Regional Offices, 8 Service Centres, 6 Overseas Offices, 6 Joint Ventures, 15 Regional Marketing Centres and current project execution at more than 150 project sites across India and abroad corroborates the humongous scale and size of its operations.



Corporate Organization Structure
(as on 04.07.2015)



Director(Power) holds additional charge of Director (Finance)

MANAGEMENT COMMITTEE

ED / PS-PMG	• Project Management • Contract Closing Group • Technical Services
ED / PS-SSBG	• Spares & Services Business Group$ • Heavy Equipment Repair Plant ,Varanasi • R&M Systems Group, Bhopal
ED / PS-PEM	• Project Engineering Management
ED / ISG	• Industrial Systems Group, Bangalore
	• Power Sector – Marketing
	• PS - MSX, SCT, HR & IT
	• PS Southern Region, Chennai
ED / PS-ER	• PS Eastern Region, Kolkata
ED / PS-NR	• PS Northern Region, NOIDA
ED / PS-WR	• PS Western Region, Nagpur
ED / FQA & Safety	• FQA & Safety
ED / TSG & DBG	• Transportation Systems Group • Defence Business
ED / TBG	• Transmission Business Group
ED / CPP, IPE, IPM & PMG	• Industrial Products Business (Elect & Mech.) • Captive Power Plant Business • IS-PMG & Contract Closing
	• Renewables & Water Business
	• Regional Operations Division
	• Component Fabrication Plant, Rudrapur
ED / CBU	• Electro Porcelains Division, Bangalore • Insulator Plant, Jagdishpur
ED / PE&SD	• Project Engg. & Systems Division, Hyderabad
ED / IO	• Overseas Business

OPERATIONS

ED / Bhopal	• Heavy Electrical Plant, Bhopal • Centre for Electric Transportation, Bhopal • EMRP, Mumbai
ED / Jhansi	• Transformer Plant, Jhansi
ED / HEEP, Haridwar	• Heavy Electrical Equipment Plant, Haridwar • Pollution Control Research Institute, Haridwar
ED / CFFP, Haridwar	• Central Foundry Forge Plant, Haridwar
ED / HPEP, Hyderabad	• Heavy Power Equipment Plant, Hyderabad
ED / Trichy	• High Pressure Boiler Plant, Trichy • Seamless Steel Tube Plant, Trichy • Welding Research Institute, Trichy • Industrial Valves Plant, Goindwal
ED / Thirumayam & PC	• Power Plant Piping Unit, Thirumayam • Piping Centre, Chennai
ED / BAP, Ranipet	• Boiler Auxilliary Plant, Ranipet
ED / EDN, Bangalore	• Electronics Division, Bangalore • Electronics Systems Division, Bangalore
ED / HPVP, Vizag	• Heavy Plates and Vessels Plant, Vizag

$ Matrix reporting to Director(IS&P) for Industry sector Business

ED: Executive Director

BHEL also has a widespread overseas footprint in 77 countries with cumulative overseas installed capacity of BHEL manufactured power plants nearing 10,000 MW including Belarus, Bhutan, Egypt, Indonesia, Iraq, Kazakhstan, Malaysia, New Zealand, Oman, Rwanda, Sudan, Tajikistan and UAE. BHEL's headquarters is situated in New Delhi.

BHEL make electric utilities installation and its global footprints are shown in the following figures.

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

ASIA
AFGHANISTAN
AZERBAIJAN
BANGLADESH
BHUTAN
CHINA
HONG KONG
INDONESIA
IRAN
IRAQ
JAPAN
JORDAN
KAZAKHSTAN
KUWAIT
LAOS
MALAYSIA
MYANMAR
NEPAL
OMAN
PHILIPPINES
SAUDI ARABIA
SINGAPORE
SRI LANKA
SYRIA
TAIWAN
TAJIKISTAN
THAILAND
UAE
VIETNAM
YEMEN

EUROPE
BELARUS
BULGARIA
CYPRUS
FINLAND
FRANCE
GEORGIA
GERMANY
GREECE
IRELAND
ITALY
MALTA
POLAND
ROMANIA
RUSSIA
SWEDEN
SWITZERLAND
TURKEY
UKRAINE
UK

NORTH AMERICA
CANADA
TRINIDAD AND TOBAGO
USA

OCEANIA
AUSTRALIA
NEW CALEDONIA
NEW ZEALAND
SAMOA

SOUTH AMERICA
SURINAME

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

BHEL MAKE ELECTRIC UTILITY INSTALLATIONS

COAL, GAS, NUCLEAR, DIESEL AND HYDRO PROJECTS

COMMISSIONED AS ON 31.03.2015 (GEOGRAPHICAL LOCATION-WISE)

GAS & CCP

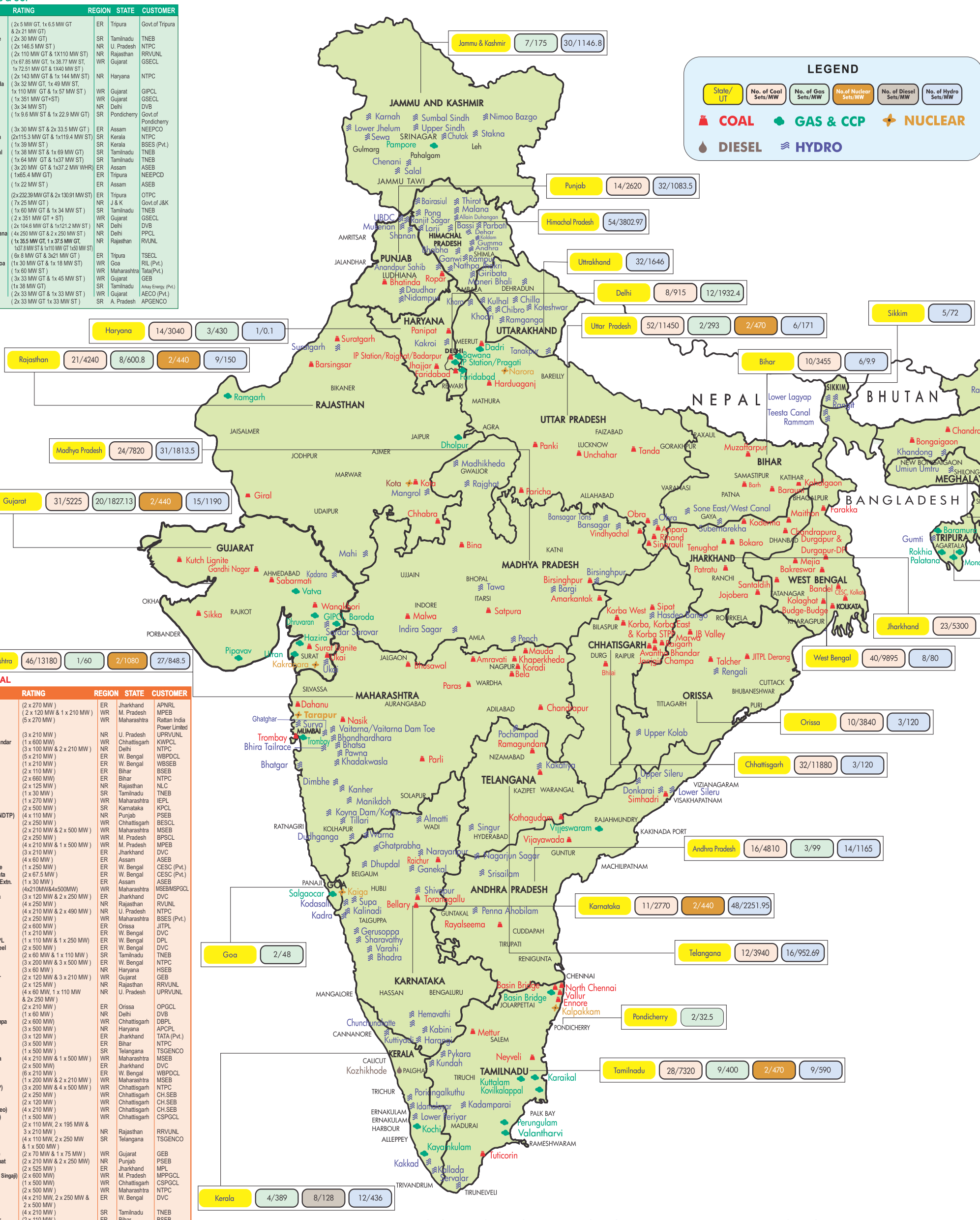
STATION	RATING	REGION	STATE	CUSTOMER
Baramura	(2x 5 MW GT, 1x 6.5 MW GT & 2x 21 MW GT)	ER	Tripura	Govt.of Tripura
Basin Bridge	(2x 30 MW GT)	SR	Tamilnadu	TNEB
Dadri	(2x 146.5 MW ST)	NR	U. Pradesh	NTPC
Dholpur	(2x 110 MW GT & 1X110 MW ST)	NR	Rajasthan	RRVUNL
Dhruvaran	(1x 67.85 MW GT, 1x 38.77 MW ST, 1x 72.51 MW GT & 1X40 MW ST)	WR	Gujarat	GSECL
Faridabad	(2x 143 MW GT & 1x 144 MW ST)	NR	Haryana	NTPC
GIPCL Baroda	(3x 32 MW GT, 1x 49 MW ST, 1x 110 MW GT & 1x 57 MW ST)	WR	Gujarat	GIPCL
Hazira	(1x 351 MW GT+ST)	WR	Gujarat	GSECL
I.P.Station	(3x 34 MW ST)	NR	Delhi	DVB
Karaikal	(1x 9.6 MW ST & 1x 22.9 MW GT)	SR	Pondicherry	Govt.of Pondicherry
Kathalguri	(3x 30 MW ST & 2x 33.5 MW GT)	ER	Assam	NEEPCO
Kayamkulam	(2x115.3 MW GT & 1x119.4 MW ST)	SR	Kerala	NTPC
Kochi	(1x 39 MW ST)	SR	Kerala	BSES (Pvt.)
Kovilkalappal	(1x 38 MW ST & 1x 69 MW GT)	SR	Tamilnadu	TNEB
Kuttalam	(1x 64 MW GT & 1x37 MW ST)	SR	Tamilnadu	TNEB
Lakwa	(3x 20 MW GT & 1x37.2 MW WHR)	ER	Assam	ASEB
Monarchak	(1x65.4 MW GT)	ER	Tripura	NEEPCD
Namrup	(1x 22 MW ST)	ER	Assam	ASEB
Palatana	(2x 232.39 MW GT & 2x 130.91 MW ST)	ER	Tripura	OTPC
Pampore	(7x 25 MW GT)	NR	J & K	Govt.of J&K
Perungulam	(1x 60 MW GT & 1x 34 MW ST)	SR	Tamilnadu	TNEB
Pipavav	(2 x 351 MW GT + ST)	WR	Gujarat	GSECL
Pragati	(2x 104.6 MW GT & 1x121.2 MW ST)	NR	Delhi	DVB
Pragati Bawana	(4x 250 MW GT & 2 x 250 MW ST)	NR	Delhi	PPCL
Ramgarh	(1x 35.5 MW GT, 1 x 37.5 MW GT, 1x37.8 MW ST & 1x110 MW GT 1x50 MW ST)	NR	Rajasthan	RVUNL
Rokhia	(6x 8 MW GT & 3x21 MW GT)	ER	Tripura	TSECL
Salgaocar Goa	(1x 30 MW GT & 1x 18 MW ST)	WR	Goa	RIL (Pvt.)
Trombay	(1x 60 MW ST)	WR	Maharashtra	Tata(Pvt.)
Utran	(3x 33 MW GT & 1x 45 MW ST)	WR	Gujarat	GEB
Valantharvi	(1x 38 MW GT)	SR	Tamilnadu	Arkay Energy. (Pvt.)
Vatva	(2x 33 MW GT & 1x 33 MW ST)	WR	Gujarat	AECO (Pvt.)
Vijjeswaram	(2x 33 MW GT 1x 33 MW ST)	SR	A. Pradesh	APGENCO

DIESEL

STATION	RATING	REGION	STATE	CUSTOMER
Bhairabi	(4x 5.73 MW)	ER	Mizoram	M P E Dept
Chatem	(5x 2.5 MW)	SR	A & Nicobar	Govt.of A & Nicobar Islands
Kozhikhode	(8x 16 MW)	SR	Kerala	KSEB
Leimakhong	(6x 6 MW)	ER	Manipur	Govt.of Manipur

NUCLEAR

STATION	RATING	REGION	STATE	CUSTOMER
Kaiga	(2x 220 MW)	SR	Karnataka	NPCIL
Kakrapar (KAPP)	(2x 220 MW)	WR	Gujarat	NPCIL
Kalapakkam (MAPP)	(2x 235 MW)	SR	Tamilnadu	NPCIL
Tarapur	(2x 540 MW)	WR	Maharashtra	NPCIL
Narora (NAPP)	(2x235 MW)	NR	U. Pradesh	NPCIL
Kota (RAPP)	(2x 220 MW)	NR	Rajasthan	NPCIL



COAL

STATION	RATING	REGION	STATE	CUSTOMER
Adhunik	(2 x 270 MW)	ER	Jharkhand	APNRL
Amarkantak	(2 x 120 MW & 1 x 210 MW)	WR	M. Pradesh	MPEB
Amravati	(5 x 270 MW)	WR	Maharashtra	Rattan India Power Limited
Anpara	(3 x 210 MW)	NR	U. Pradesh	UPRVUNL
Avantha Bhandar	(1 x 600 MW)	WR	Chhattisgarh	KWPCL
Badarpur	(3 x 100 MW & 2 x 210 MW)	NR	Delhi	NTPC
Bakreswar	(5 x 210 MW)	ER	W. Bengal	WBPDCL
Bandel	(1 x 210 MW)	ER	W. Bengal	WBSEB
Barauni	(2 x 110 MW)	ER	Bihar	BSEB
Barh	(2 x 660 MW)	ER	Bihar	NTPC
Barsingsar	(2 x 125 MW)	NR	Rajasthan	NLC
Basin Bridge	(1 x 30 MW)	SR	Tamilnadu	TNEB
Bela	(1 x 270 MW)	WR	Maharashtra	IEPL
Bellary	(2 x 500 MW)	SR	Karnataka	KPCL
Bhatinda (GNDTP)	(4 x 110 MW)	NR	Punjab	PSEB
Bhilai	(2 x 250 MW)	WR	Chhattisgarh	BESCL
Bhusawal	(2 x 210 MW & 2 x 500 MW)	WR	Maharashtra	MSEB
Bina	(2 x 250 MW)	WR	M. Pradesh	BPSCL
Birsinghpur	(4 x 210 MW & 1 x 500 MW)	WR	M. Pradesh	MPEB
Bokaro	(3 x 210 MW)	ER	Jharkhand	DVC
Bongaigaon	(4 x 60 MW)	ER	Assam	ASEB
Budge-Budge	(1 x 250 MW)	ER	W. Bengal	CESC (Pvt.)
CESC, Kolkata	(2 x 67.5 MW)	ER	W. Bengal	CESC (Pvt.)
Chandrapur-Extn.	(1 x 30 MW)	ER	Assam	ASEB
Chandrapur	(4x210MW&4x500MW)	WR	Maharashtra	MSEB/MSPGCL
Chandrapura	(3 x 120 MW & 2 x 250 MW)	ER	Jharkhand	DVC
Chhabra	(4 x 250 MW)	NR	Rajasthan	RVUNL
Dadri	(4 x 210 MW & 2 x 490 MW)	NR	U. Pradesh	NTPC
Dahanu	(2 x 250 MW)	WR	Maharashtra	BSES (Pvt.)
Derang	(2 x 600 MW)	ER	Orissa	JITPL
Durgapur	(1 x 210 MW)	ER	W. Bengal	DVC
Durgapur-DPL	(1 x 110 MW & 1 x 250 MW)	ER	W. Bengal	DPL
Durgapur-Steel	(2 x 500 MW)	ER	W. Bengal	DVC
Ennore	(2 x 60 MW & 1 x 110 MW)	SR	Tamilnadu	TNEB
Farakka	(3 x 200 MW & 3 x 500 MW)	ER	W. Bengal	NTPC
Faridabad	(3 x 60 MW)	NR	Haryana	HSEB
Gandhinagar	(2 x 120 MW & 3 x 210 MW)	WR	Gujarat	GEB
Giral	(2 x 125 MW)	NR	Rajasthan	RRVUNL
Harduaganj	(4 x 60 MW, 1 x 110 MW & 2x 250 MW)	NR	U. Pradesh	UPRVUNL
Ib Valley	(2 x 210 MW)	ER	Orissa	OPGCL
I P Station	(1 x 60 MW)	NR	Delhi	DVB
Janjgir Champa	(2 x 600 MW)	WR	Chhattisgarh	DBPL
Jhajjar	(3 x 500 MW)	NR	Haryana	APCPL
Jojobera	(3 x 120 MW)	ER	Jharkhand	TATA (Pvt.)
Kahalgaon	(3 x 500 MW)	ER	Bihar	NTPC
Kakatiya	(1 x 500 MW)	SR	Telangana	TSGENCO
Khaperkheda	(4 x 210 MW & 1 x 500 MW)	WR	Maharashtra	MSEB
Koderma	(2 x 500 MW)	ER	Jharkhand	DVC
Kolaghat	(6 x 210 MW)	ER	W. Bengal	WBPDCL
Koradi	(1 x 200 MW & 2 x 210 MW)	WR	Maharashtra	MSEB
Korba (STPP)	(3 x 200 MW & 4 x 500 MW)	WR	Chhattisgarh	NTPC
Korba (East)	(2 x 250 MW)	WR	Chhattisgarh	CH.SEB
Korba (Extn)	(2 x 120 MW)	WR	Chhattisgarh	CH.SEB
Korba (Hasdeo)	(4 x 210 MW)	WR	Chhattisgarh	CH.SEB
Korba (West)	(1 x 500 MW)	WR	Chhattisgarh	CSPGCL
Kota	(2 x 110 MW, 2 x 195 MW & 3 x 210 MW)	NR	Rajasthan	RRVUNL
Kothagudem	(4 x 110 MW, 2 x 250 MW & 1 x 500 MW)	SR	Telangana	TSGENCO
Kutch Lignite	(2 x 70 MW & 1 x 75 MW)	WR	Gujarat	GEB
Lehra Mohabat	(2 x 210 MW & 2 x 250 MW)	NR	Punjab	PSEB
Maithon	(2 x 525 MW)	ER	Jharkhand	MPL
Malwa (Shree Singaji)	(2 x 600 MW)	WR	M. Pradesh	MPPGCL
Marwa	(1 x 500 MW)	WR	Chhattisgarh	CSPGCL
Mauda	(2 x 500 MW)	WR	Maharashtra	NTPC
Mejia	(4 x 210 MW, 2 x 250 MW & 2 x 500 MW)	ER	W. Bengal	DVC
Mettur	(4 x 210 MW)	SR	Tamilnadu	TNEB
Muzzaffarpur	(2 x 110 MW)	ER	Bihar	BSEB
Muzzaffarpur	(1 x 195 MW)	ER	Bihar	KBUNL
Namrup	(1 x 30 MW)	ER	Assam	ASEB
Nasik	(3 x 210 MW)	WR	Maharashtra	MSEB
Nasik	(1 x 270 MW)	WR	Maharashtra	RattanIndia Ltd.
Neyveli	(4 x 210 MW & 2 x 250 MW)	SR	Tamilnadu	NLC
North Chennai	(3 x 210 MW & 2 x 600 MW)	SR	Tamilnadu	TANGEDCO
Obra	(3 x 100 MW & 5 x 200 MW)	NR	U. Pradesh	UPRVUNL
Panipat	(4 x 110 MW & 2 x 210 MW & 2x 250 MW)	NR	Haryana	HSEB
Panki	(2 x 110 MW)	NR	U. Pradesh	UPRVUNL
Paras	(2x 250 MW)	WR	Maharashtra	MSEB
Paricha	(2 x 110 MW, 2 x 210 MW & 2 x 250 MW)	NR	U. Pradesh	UPRVUNL
Parli	(2 x 30 MW, 3 x 210 MW & 2 x 250 MW)	WR	Maharashtra	MSEB
Patratu	(4 x 110 MW)	ER	Jharkhand	JSEB
Raichur	(6 x 210 MW & 1 x 250 MW)	SR	Karnataka	KPCL
Raigarh	(4 x 250 MW & 4 x 600 MW)	WR	Chhattisgarh	JPL
Rajghat	(2x 67.5 MW)	NR	Delhi	DVB
Ramagundam	(4 x 500 MW)	SR	Telangana	NTPC
Rayalseema	(5 x 210 MW)	SR	A. Pradesh	APGENCO
Rihand	(4 x 500 MW)	NR	U. Pradesh	NTPC
Ropar	(6 x 210 MW)	NR	Punjab	PSEB
Sabarmati	(3 x 110 MW)	WR	Gujarat	AECO
Santaldih	(4 x 120 MW & 2 x 250 MW)	ER	W. Bengal	WBSEB
Satpura	(1 x 200 MW, 3 x 210 MW) & 2 x 250 MW)	WR	M. Pradesh	MPEB
Sikka	(2 x 120 MW & 1 x 250 MW)	WR	Gujarat	GSECL
Simhadri	(4 x 500 MW)	SR	A. Pradesh	NTPC
Singrauli	(5 x 200 MW & 2 x 500 MW)	NR	U. Pradesh	NTPC
Sipat	(2x 500 MW)	WR	Chhattisgarh	NTPC
Surat Lignite	(4 x 125 MW)	WR	Gujarat	GIPCL
Suratgarh	(6 x 250 MW)	NR	Rajasthan	RVUNL
Talcher	(2 x 110 MW & 4 x 500 MW)	ER	Orissa	NTPC
Tanda	(4 x 110 MW)	NR	U. Pradesh	NTPC
Tenughat	(2 x 210 MW)	ER	Jharkhand	TVNL
Tornagallu	(2 x 130 MW)	SR	Karnataka	JTPCL(Pvt.)
Trombay	(1 x 250 MW & 2 x 500 MW)	WR	Maharashtra	Tata(Pvt.)
Tuticorin	(5 x 210 MW)	SR	Tamilnadu	TNEB
NTPL Tuticorin	(1 x 500 MW)	SR	Tamilnadu	NTPL
Ukai	(2 x 120 MW, 2 x 200 MW, 1 x 210 MW & 1 x 500 MW)	WR	Gujarat	GEB
Unchahar	(5 x 210 MW)	NR	U. Pradesh	NTPC
Vallur	(3 x 500 MW)	SR	Tamilnadu	NTECL
Vijayawada	(6 x 210 MW & 1 x 500 MW)	SR	A. Pradesh	APGENCO
Vindhyachal	(6x 500 MW)	WR	M. Pradesh	NTPC
Wanakbori	(7x 210 MW)	WR	Gujarat	GEB

HYDRO

STATION	RATING	REGION	STATE	CUSTOMER
Allain Duhangan	(2 x 96 MW)	NR	Himachal	ADHPL
Almatti	(1 x 15 MW & 5 x 55 MW)	SR	Karnataka	KPCL
A.P.Sahib	(4 x 33.5 MW)	NR	Punjab	PSEB
Andhra	(3x 5.65 MW)	NR	Himachal	HPSEB
Bairasiul	(3x 60 MW)	NR	Himachal	NHPC
Bansagar Tons	(3x 105 MW)	WR	M. Pradesh	MPEB
Bansagar	(2x 10 MW, 2x 15 MW & 3x 20 MW)	WR	M. Pradesh	MPEB
Bargi	(2x 45 MW)	WR	M. Pradesh	MPEB
Bassi	(4x 15 MW)	NR	Himachal	HPSEB
Bhabha	(3x 40 MW)	NR	Himachal	HPSEB
Bhadra	(1x 6 MW)	SR	Karnataka	KPCL
Bhandardhara	(1x 10 MW & 1x 34 MW)	WR	Maharashtra	Govt.of Maharashtra
Bhatgar	(1x 16 MW)	WR	Maharashtra	Govt.of Maharashtra
Bhatsa	(1x 15 MW)	WR	Maharashtra	Govt.of Maharashtra
Bhira Tailrace	(2x 40 MW)	WR	Maharashtra	Govt.of Maharashtra
Birsinghpur	(1x 20 MW)	WR	M. Pradesh	MPEB
Chenani	(2x 4.6 MW)	NR	J & K	Govt.of J&K
Chibro	(4x 60 MW)	NR	Uttarakhand	UJVNL
Chilla	(4x 36 MW)	NR	Uttarakhand	UJVNL
Chunchunkatte	(2x 9 MW)	SR	Karnataka	Graphite India Ltd. (Pvt)
Chutak	(4x 11 MW)	NR	J & K	NHPC
Daudhar	(3x 0.5 MW)	NR	Punjab	PSEB
Dehar	(6x 165 MW)	NR	Himachal	BBMB
Dhupdal	(2x 1.4 MW)	SR	Karnataka	Fores Gokak Mills(Pvt.)
Dimbhe	(1x 5 MW)	WR	Maharashtra	Govt.of Maharashtra
Donkarai	(1x 25 MW)	SR	A. Pradesh	APGENCO
Doyang	(3x 25 MW)	ER	Nagaland	NEEPCO
Dudhganga	(2x 12 MW)	WR	Maharashtra	Govt.of Maharashtra
Ganekal	(1x 0.35 MW)	SR	Karnataka	KPCL
Ganwi	(2x 11.25 MW)	NR	Himachal	HPSEB
Gerusoppa	(4x 60 MW)	SR	Karnataka	KPCL
Ghatgar	(1x125 MW)	WR	Maharashtra	GOM
Ghatprabha	(2x 16 MW)	SR	Karnataka	KPCL
Giribata	(2x 30 MW)	NR	Himachal	HPSEB
Gumma	(2x 1.5 MW)	NR	Himachal	HPSEB
Gumti	(3x 5 MW)	ER	Tripura	Govt.of Tripura
Harangi	(2x 4.5 MW)	SR	Karnataka	Sulzer Flovel Hydro Ltd.(Pvt)
Hasdeo Bango	(3x 40 MW)	WR	Chhattisgarh	CH.SEB
Hemavati	(4x 4 MW)	SR	Karnataka	Sulzer Flovel Hydro Ltd.(Pvt)
Idamalayar	(2x 37.5 MW)	SR	Kerala	KSEB
Indira Sagar	(8x 125 MW)	WR	M. Pradesh	NHDC
Kabini	(2x 10 MW)	SR	Karnataka	PVT.
Kadamparai	(4x 100 MW)	SR	Tamilnadu	TNEB
Kadana	(4x 60 MW)	WR	Gujarat	GEB
Kadra	(3x 50 MW)	SR	Karnataka	KPCL
Kakatiya	(3x 0.23 MW)	SR	Telangana	TSGENCO
Kakkad	(2x 25 MW)	SR	Kerala	KSEB
Kakroi	(1x 0.1 MW)	NR	Haryana	HSEB
Kalinadi	(6x 135 MW)	SR	Karnataka	KPCL
Kallada	(2x 7.5 MW)	SR	Kerala	KSEB
Kanher	(1x 4 MW)	WR	Maharashtra	Govt.of Maharashtra
Karnah	(2x 1 MW)	NR	J & K	Govt.of J&K
Khadakwasla	(2x 8 MW)	WR	Maharashtra	Govt.of Maharashtra
Khandong	(2x 25 MW)	ER	Assam	NEEPCO
Khara	(3x 24 MW)	NR	U. Pradesh	UPJVNL
Khodri	(4x 30 MW)	NR	Uttarakhand	UJVNL
Kodasalli	(3x 40 MW)	SR	Karnataka	KPCL
Koldam	(2x 200 MW)	NR	Himachal	NTPC
Kopili	(1x25 MW & 4x 50 MW)	ER	Assam	NEEPCO
Koteshwar	(4x 100 MW)	NR	Uttarakhand	THDC
Koyna	(4x 80 MW)	WR	Maharashtra	Govt.of Maharashtra
Koyna Dam	(2x 20 MW)	WR	Maharashtra	Govt.of Maharashtra
Kulhal	(3x 10 MW)	NR	Uttarakhand	UJVNL
Kundah	(1x 20 MW)	SR	Tamilnadu	TNEB
Kuttiyadi	(2x 50 MW)	SR	Kerala	KSEB
Larji	(3x 42 MW)	NR	Himachal	HPSEB
Loktak	(3x 35 MW)	ER	Manipur	NHPC
Lower Jhelum	(3x 35 MW)	NR	J & K	Govt.of J&K
Lower Lagyap	(2x 6 MW)	ER	Sikkim	Govt.of Sikkim
Lower Periyar	(3x 60 MW)	SR	Kerala	KSEB
Lower Sileru	(2x 115 MW)	SR	A. Pradesh	APGENCO
Madikheda	(3x 20 MW)	WR	M. Pradesh	MPEB
Mahi	(2x 25MW & 2x 45 MW)	NR	Rajasthan	RRVUNL
Malana	(2x 43 MW)	NR	Himachal	MPCL (Pvt)
Maneri Bhali	(3x 30 MW & 4X76 MW)	NR	Uttarakhand	UJVNL
Mangrol	(3x 2 MW)	NR	Rajasthan	RRVUNL
Manikdoh	(1x 6 MW)	WR	Maharashtra	Govt.of Maharashtra
Mukerian	(6x15 MW & 6x19.5 MW)	NR	Punjab	PSEB
Nagarjun Sagar	(5x100 MW &1x110 MW)	SR	Telangana	TSGENCO
Narayanpur	(2x 5.8 MW)	SR	Karnataka	MPCL (Pvt)
Nathpa Jhakri	(1x 250 MW)	NR	Himanchal	SJVNL
Nidampur	(2x 0.5 MW)	NR	Punjab	PSEB
Nimmo Bazgo	(3 x 15 MW)	NR	J & K	NHPC
Obra	(3x 33 MW)	NR	U. Pradesh	UPJVNL
Penna Ahobilam	(2 x 10 MW)	SR	Telangana	TSGENCO
Parbati	(4 x 130 MW)	NR	Himachal	NHPC
Pawna	(1x 10 MW)	WR	Maharashtra	Govt.of Maharashtra
Pench	(2x 80 MW)	WR	M. Pradesh	MPEB
Pochampad	(3x 9 MW)	SR	Telangana	TSGENCO
Pong	(6x 60 MW)	NR	Himachal	BBMB
Poriangalkuthu	(1x 16 MW)	SR	Kerala	KSEB
Pykara	(3x 50 MW)	SR	Tamilnadu	TNEB
Rajghat	(3x 15 MW)	WR	M. Pradesh	MPEB
Ramganga	(3x 66 MW)	NR	Uttarakhand	UJVNL
Rammam	(4x 12.5 MW)	ER	W. Bengal	WBSEB
Rampur	(6 x 68.67 MW)	NR	Himachal	SJVNL
Ranganadi	(3x 135 MW)	ER	Arunachal	NEEPCO
Rangit	(3x 20 MW)	ER	Sikkim	NHPC
Ranjit Sagar	(4x 150 MW)	NR	Punjab	PSEB
Rengali	(5x 50 MW)	ER	Orissa	OPGCL
Salal	(6x 115 MW)	NR	J & K	NHPC
Sardar Sarovar	(5x 50 MW & 2x 200MW)	WR	Gujarat	SSNNL
Servalar	(1x 20 MW)	SR	Tamilnadu	TNEB
Sewa	(3x 40 MW)	NR	J & K	NHPC
Shanan Extn.	(1x 50 MW)	NR	Punjab	PSEB
Sharavathy	(2x 89.1 MW)	SR	Karnataka	KPCL
Shivapur	(2x 9 MW)	SR	Karnataka	BPCL (Pvt.)
Singur	(2x 7.5 MW)	SR	Telangana	TSGENCO
Srisailam	(7x 110 MW)	SR	A. Pradesh	APGENCO
Srisailam	(2x150MW)	SR	Telangana	TSGENCO
Sone E Canal	(2x 1.65 MW)	ER	Bihar	BSHPC
Sone W Canal	(4x 1.65 MW)	ER	Bihar	BSHPC
Stakna	(2x 2 MW)	NR	J & K	Govt.of J&K
Subernrekha	(2x 65 MW)	ER	Bihar	BSHPC
Sumbal Sindh	(2x 11.3 MW)	NR	J & K	Govt.of J&K
Supa	(2x 50 MW)	SR	Karnataka	KPCL
Suratgarh	(2x 2 MW)	NR	Rajasthan	RRVUNL
Surya	(1x 6 MW)	WR	Maharashtra	Govt.of Maharashtra
Tago	(3x 1.5 MW)	ER	Arunachal	Govt.of Arunachal
Tanakpur	(3x 40 MW)	NR	Uttarakhand	NHPC
Tawa	(2x 6.75 MW)	WR	M. Pradesh	HEG (Pvt.)
Teesta Canal	(4x 7.5 MW)	ER	W. Bengal	WBSEB
Thirot	(3x 1.5 MW)	NR	Himachal	HPSEB
Tillari	(1x 60 MW)	WR	Maharashtra	Govt.of Maharashtra
UBDC	(6x 15 MW)	NR	Punjab	PSEB
Ukai	(4x 75 MW)	WR	Gujarat	GEB
Umium Umtru	(4x 30 MW)	ER	Meghalaya	MeSEB
Upper Kolab	(4x 80 MW)	ER	Orissa	OPGCL
Upper Sileru	(2x 60 MW)	SR	A. Pradesh	APGENCO
Upper Sindh	(3x 35 MW)	NR	J & K	Govt.of J&K
Vaiterna	(1x 60 MW)	WR	Maharashtra	Govt.of Maharashtra
Vaiterna Dam Toe	(1x 1.5 MW)	WR	Maharashtra	Govt.of Maharashtra

REGION-WISE DISTRIBUTION OF BHEL MAKE UTILITY SETS

REGION	COAL		GAS & CCP		HYDRO		NUCLEAR		DIESEL		TOTAL	
	SETS	MW	SETS	MW	SETS	MW	SETS	MW	SETS	MW	SETS	MW
NORTHERN	109	22265	32	3431.2	164	8000.37	4	910	-	-	309	34607
EASTERN	89	22790	27	1237.7	56	1861	-	-	10	59	182	25948
WESTERN	133	38105	23	1935	76	3972	4	1520	-	-	236	45532
SOUTHERN	67	18840	18	921	99	5396	4	910	13	140	201	26207
TOTAL	**398**	**102000**	**100**	**7525**	**395**	**19229**	**12**	**3340**	**23**	**199**	**928**	**132293**

CUSTOMER-WISE DISTRIBUTION OF BHEL MAKE (COAL) UTILITY SETS

Customer	AECO	APCPL	APGENCO	APNRL	ASEB	BPSCL/NSPCL	BPSCL	BSEB	REL-BSES	CESC	CSPGCL / CH.SEB	DBPL	DPL	DVB	DVC
Sets	3	3	12	2	6	2	2	4	2	3	10	2	2	3	21
MW	330	1500	2810	540	300	500	500	440	550	385	2580	1200	360	195	6040

Customer	GSECL/GEB	GIPCL	HSEB	IEPL	Rattan India Power Limited	JITPL	JPL	JSPL (Pvt.)	JSEB	JTPCL (Pvt.)	KBUNL	KPCL	KWPCL	MPPGCL/MPEB	MPL
Sets	24	4	11	1	6	2	4	4	4	2	1	9	1	16	2
MW	4395	500	1540	270	1620	1200	2400	1000	440	260	195	2510	600	4320	1050

Customer	MSPGCL/MSEB	NLC	NTECL	NTPC	NTPL	OPGCL	PSEB	RVUNL	TATA(Pvt.)	TANGEDCO/TNEB	TSGENCO	TVNL	UPRVUNL/UPSEB	WBPDCL/WBSEB	TOTAL
Sets	32	8	3	73	1	2	14	19	6	18	8	2	26	18	**398**
MW	8540	1590	1500	26770	500	420	2620	3990	1610	3980	1940	420	4140	3500	**102000**

BHARAT HEAVY ELECTRICALS LIMITED

POWER SECTOR MANAGEMENT SERVICES

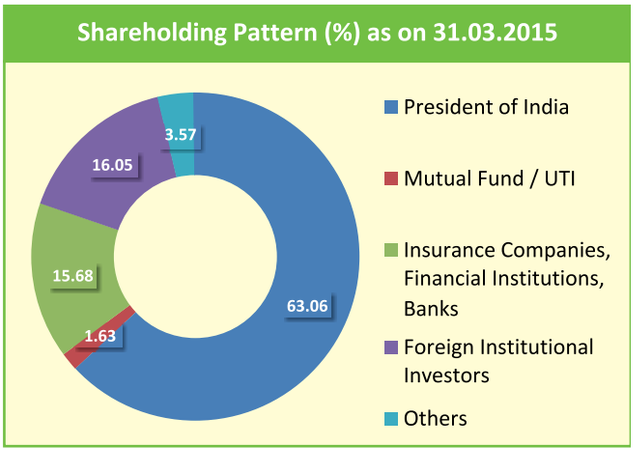
BHEL HOUSE, SIRIFORT, NEW DELHI

For details visit : http://10.23.1.23

Nature of ownership and legal form

BHEL is a Maharatna Public Sector Undertaking (PSU) 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 31st March 2015 is shown in the Figure below.

There has been no change in the shareholding of the Government of India during the reporting year.



Awards & Accolades

Continuing its tradition of winning prestigious national/international awards in diverse arenas, BHEL and its employees won several awards during the year 2014-15. Notable among these include:

Business Excellence & Industry leadership

- 'DSIJ Award 2014' for the Most Efficient Maharatna PSU for the 6th year in succession

- Recognition of excellence for completing' 50 years of Engineering Excellence' from Dun & Bradstreet

- '44th EEPC Award' for the 'Star performer for 2013-14' in the product group of project Exports
- 'Governance Now PSU Awards 2014' under category of "Asset Utilization & Strategic Turnaround"

- CBIP Award for 'Best Power Equipment Manufacturing Organisation'

- ICAI National Award for Excellence in Cost Management for 9th consecutive year

- **Skoch Order-of-Merit** for 'Integrated Real Time Quality Management System at BHEL Bhopal' as a quality improvement initiative
- **6 'National Safety Award' to BHEL's EPD, Bengaluru and Trichy** units for outstanding achievements in terms of longest accident free period and lowest accident frequency rate at their works

- National e-governance Gold Award for 2014-15 in the category - 'Innovative use of ICT by Central Government PSUs', for the project 'SAMPARK – Online Integrated Employee Centric services Portal', developed by BHEL, Bhopal

- **'Dainik Bhaskar India Pride Award 2014-15'** for Excellence in Heavy Industries category for the 6th consecutive year

Innovation

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

- **PSE Excellence Award 2014 for R&D & Technology Development** in the Maharatna & Navratna CPSEs Category by the Indian Chamber of Commerce (ICC)

- **India Today 'Best Maharatna PSU Awards' for Global Presence & Innovation & R&D**

- **National Intellectual Property Award 2014** for being the 'Top Indian Public Limited Company in Patents'

Corporate Social Responsibility

- **Conferred 'Skoch Foundation Order of Merit Awards'** for the best CSR project in the country-'Vision to All - BHEL's Call' for eradication of corneal blindness through eye donation

- **'Pandit Madan Mohan Malaviya Bronze Award'** for Best CSR Practices in the field of Education by 'CSR Times'
- **Silver Plate'** Award by HelpAge India

Leadership

- **'Honour of Excellence'** award bestowed by **Hon'ble President of India** on **Sh. B. Prasada Rao, CMD, BHEL.** Hon'ble Chief Justice of Kolkata High Court, Mrs. Justice Manjula Chellur, gave away the award at the inaugural function of the Indian Institute of Engineering Science & Technology (IIEST), Shibpur (West Bengal)

Sh. Atul Sobti, Director (Power), BHEL, was awarded the 'India Pride Award 2014-15' for Excellence as 'Head of Department' among Central PSUs. The award was received by Sh. Atul Sobti, Director (Power), BHEL, from Sh. Arun Jaitley, Hon'ble Union Minister of Finance, Corporate Affairs and Information & Broadcasting

- BHEL Employees were awarded with Prime Minister's **'Shram Awards'** which included **1 'Shram Bhushan'** and **11 'Vishwakarma Rashtriya Puraskars'**

- **Ms. M Girija,** an artisan in the welder trade from BHEL Trichy received the **'All India Second Prize for the Best Woman Employee'** in 'nonexecutive category award' from Mr. Anant Geete, Hon'ble Union Minister for HI & PE

- **Sh. P.K. Bajpai,** Director (Finance) was awarded with **'CFO 100 Roll of Honor 2015'** in Funds Management Category

Corporate Governance

Management Approach

BHEL has established a sound framework of Corporate Governance which underlines commitment to quality of governance, transparency disclosures, consistent stakeholders' value enhancement and corporate social responsibility. BHEL endeavours to transcend much beyond the regulatory framework 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 Company has developed a framework for ensuring transparency, disclosure and fairness to all, especially minority shareholders.

Governance structure at BHEL

The composition of the Board of Directors is as follows:

Particulars	Board Structure	Actual Strength as on 31.03.2015
Chairman & Managing Director	1	1
Whole-time Executive (Functional) Directors	5	5
Part-time Official Directors (Government Nominees) representing the Ministry of Heavy Industries & Public Enterprises, Government of India	2	2
Part-time Non-official (Independent) Directors	8	2
TOTAL	**16**	**10**

As on 31st March, 2015, there existed six vacancies of Part-time Non-official (Independent) Directors on the Board of BHEL. 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.

Board Level Committees

There are nine Board Level Committees in BHEL. The details of the Committees of the Board with regard to their composition and respective Terms of Reference (responsibilities/ mandate) as on 31.03.2015 can be seen in BHEL's Annual Report 2014-15 page 116 – 123.

The Board comprised of persons (10) within the age group of 45-65 years. There is one Woman Director on the Board of BHEL with age of 62 years. Only one woman Director belonged to a minority group. All Directors are eminent personalities having wide experience in the field of Management, Finance, Engineering, Administration and Industry. The Chair of Highest Governing body is also an executive officer (Chairman & Managing Director).

BHEL has a unitary board structure. As on 31.03.2015, there was one woman independent (non-executive) Director on the Board of BHEL. BHEL defines "Independent Director" as per Section 149(6) of the Companies Act, 2013, Clause 49 of the Listing Agreement and DPE Guidelines on Corporate Governance.

The shareholders can provide recommendations and suggestions to any Director on the Board of BHEL. Contact details are available on the website of the Company (www.bhel.com). Further, shareholders have a dedicated email-id viz. shareholderquery@bhel.in to communicate with the Company. Shareholders can also raise queries, interact with Board members and provide suggestions at the General Meeting(s) of the Company.

Addressing Conflict of Interest (CoI)

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.

Constitution of Highest Governing Body

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.

Board of Directors (as on 24.07.2015)

Sitting from right to left:

Ms. Harinder Hira,
Part-time Non-official Director

Shri B. Prasada Rao,
Chairman & Managing Director

Shri S.K. Bahri,
Additional Secretary & Financial Adviser, DIPP

Standing from right to left:

Shri Atul Sobti, Director (Power)

Shri R. Krishnan, Director (HR)

Shri A.N. Roy, Part-time Non-official Director

Shri Rajesh Kumar Singh,
Joint Secretary, DHI

Shri W.V.K. Krishna Shankar,
Director (Industrial Systems & Products)

Shri I.P. Singh, Company Secretary

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.

Code of Business Conduct

As part of BHEL's persisting endeavour to set a high standard of conduct for its employees, a 'Code of Business Conduct and Ethics' was laid down for all Board Members and Senior Management personnel and the same was revised in line with changes in the regulatory framework & changing business dynamics and to incorporate other relevant provisions to strengthen the Code. Pursuant to revised Clause 49 (II) (E) of the Listing Agreement with the Stock Exchanges, the Board of Directors of BHEL in its 465th meeting held on 14th November, 2014 revised and approved the "Code of Business Conduct & Ethics for Board Members and Senior Management Personnel" of the Company.

The 'Code of Business Conduct & Ethics' encompasses:

- **General Moral Imperatives;**
- **Specific Professional Responsibilities; and**
- **Specific Additional Provisions for Board Members and Senior Management Personnel.**

A copy of the said revised Code has been placed on the Company's website 'www.bhel.com'. Additional suggestions / ideas to improve the said Code are gladly invited. All Board members and Senior Management Personnel affirm compliance with BHEL's "Code of Business Conduct and Ethics" at the end of every financial year. A declaration to this effect is signed by the Chairman & Managing Director and given in the Annual Report of the Company. All Board members and Senior Management personnel have affirmed compliance with BHEL's "Code of Business Conduct and Ethics" for the financial year 2014-15.

Working of the Board

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 2014-15, 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 heads (as shown in the box) 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.

In addition to the above, the Board of Directors has also constituted various statutory and technical committees such as the Board Level Audit Committee, Stakeholders Relationship Committee, Share Transfer Committee, HR Committee, Board level Committee for CSR, Committee of Independent Directors, Nomination & Remuneration Committee and Board Level Risk Management Committee to ensure in-depth analysis & review as well as provide requisite guidance, advice and

recommendations on important matters. The procedures for conducting meetings of these Committees are also similar to that followed for the Board of Directors.

- 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 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.
- Quarterly details of foreign exchange exposures and the steps taken by management to limit the issues of adverse exchange rate movement, if material.
- 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.
- Significant Capital Investment proposals.
- Changes in significant accounting policies &practices and reasons for the same.
- Performance of various units/ functions.
- Any other information required to be presented to the Board either for information or approval.

Ethics, Transparency & Integrity

All the Board Members and Senior management personnel have affirmed compliance with BHEL's "Code of Business Conduct and Ethics" for the financial year 2014-15.

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.

Principles of BHEL's Corporate Governance policy	
1	Independence and versatility of the Board
2	Integrity and ethical behaviour of all personnel
3	Recognition of obligations towards all stakeholders – shareholders, customers, employees, suppliers and the society
4	High degree of disclosure and transparency levels
5	Total compliance with laws in all areas in which the company operates
6	Achievement of above goals with compassion for people and environment

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

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 chapter X of the Companies Act, 2013), CAG audit under section 143 of the Companies Act, 2013.

BHEL is a front-runner in implementing the Right to Information (RTI) Act, 2005 and has embraced the Act in true letter and spirit. A Central Public Information Officer (CPIO) and a Central Assistant Public Officer (CAPIO) aided by a Senior Executive (Law) at the company level and 17 CPIOs at each of the major administrative units are functioning as part of the Right to Information Group. An Appellate Committee is functioning at the Company level to dispose off first appeals filed under the RTI Act. To assist and facilitate the citizens in obtaining information, detailed guidelines have been placed on BHEL's website, spelling out the procedure for securing access to information and filing of first appeals under the Act.

BHEL is an active member of Steering Committee on RTI constituted by Standing Conference of Public Enterprises (SCOPE). BHEL received 1351 RTI applications and 321 appeals during the year 2014-2015 which were dealt with as per the provisions of the Act.

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

The company has an in-house Internal Audit Department commensurate with its size of operations. It has Internal Audit cells, located at major manufacturing units, regional offices and corporate office of the company, which carry out audits as per Annual Audit Programme approved by Board Level Audit Committee. The Internal Audit department reviews & evaluates the adequacy and effectiveness of internal control system through regular audits, system reviews and provides assurance on compliance to the legal, regulatory and internal policies and procedures of the company. The Company has well placed proper and adequate systems of internal control and documented procedures covering all financial and operating functions. Adequate internal control measures are in the form of various codes, manuals and procedures issued by the management covering all critical and important activities. Functioning of Internal Audit and Internal control systems are periodically reviewed by the Board Level Audit Committee, which is supported by Unit Level Audit Committees and necessary directions are issued wherever required to further strengthen the internal control system keeping in view the dynamic environment in which the company is operating. The company continues its efforts to align all its processes and controls with global best practices.

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

Preventive vigilance remained the focus area of BHEL Vigilance, with special emphasis on systemic improvements. To strengthen the vigilance administration, Whistle-blower Policy of the company was issued. Further, action was initiated for review of Works policy, Works Account Manual and HR Manual.

Public Awareness is an important cornerstone for good governance. An enlightened employee not only can contribute in achieving the organizational goal but also can improve system. Training programmes / sessions were conducted to update employees about Company's policies, rules and procedures in various BHEL Units and Regions. In addition, interactive sessions were held with line executives representing different functional areas to sensitize them about the risk prone areas. In this regard, 15.57% (1980 out of 12712) management employees and 2.72% (871out of 32011) were trained in anti-corruption during the year.

With a view to create awareness about procurement and works policy, rules and procedures, etc., to disseminate the instructions/ guidelines issued by CVC and Government of India from time to time and to share best practices and case studies, a quarterly e-Newsletter 'DISHA' is being published by Corporate Vigilance. Corporate Vigilance teams inspected 9 Units. The issues observed during inspections were discussed in interactive sessions with the respective 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.

With a view to increase competition and check cartel formation, critical review of tender conditions was also undertaken. Due to proactive action of Vigilance, savings to the

tune of ₹ 37.03 Crore (approx.) have been achieved.

BHEL Vigilance prepared a detailed Corruption Mitigation Action Plan, in respect of potential areas of corruption, which has been taken up for implementation by all Units. Routine / Surprise inspections were carried out by Unit / Corporate Vigilance to verify the compliance of rules and procedures. Instructions/Guidelines were issued concerning following issues for further improvement in the system:

a.	Deficiencies in Tendering Process of Transportation Contracts
b.	Clarification on clause 4.0 of Guidelines on Suspension on Business Dealings with Suppliers / Contractors
c.	Prequalification Criteria (PQ)
d.	Receipt and Opening of Tenders
e.	Deficiency in Quality Inspections
f	Reasonableness of Rates

Some specific areas of concern such as Estate Management, Stores Management, and Procurement were identified and Units were advised to initiate action in these areas:

a	Recovery of outstanding dues on account of rent and allied charges from the allottees of quarters/ shops in Townships.
b	Identification/ segregation of surplus / usable stores/ scrap material from the stores lying outside the workshops in the premises of units and not used/ disposed of for very long time.
c	Installation of Bio-metric Attendance System linked with pay system.
d	Procurement through open tender route particularly for high value packages and review of PMDs to weed out inactive suppliers.

To improve record management, Vigilance Department issued on 20.08.2014 Guidelines for Retention / Weeding out of Old Records.

To enhance the skills of Vigilance Officers, a workshop for Vigilance Officers was organized from 27.08.2014 to 29.08.2014 at BHEL, Bhopal. BHEL is committed to bring transparency in day to day operations of the Company by leveraging technology. The information regarding procurement related matters such as status of purchase orders and Contracts, Vendor registration along with their current status is hosted on the Company website. In addition, e-tendering route is being promoted for procurement and e-payment system has been implemented to reduce vendor interface. Further, steps have been taken to promote e-procurement in the Company. The percentage of e-procurement increased from 25% to 37% and around 26% of tenders (value wise) were decided through Reverse Auction during 2014-15.

Vigilance examined 144 complaints and investigated 30 complaints during the year. Punitive actions ware taken against 64 officials. During the year major penalty was imposed on 8 employees, minor penalty on 33 employees whereas 23 employees were issued warning/ caution.

Materiality And Stakeholder Engagement

BHEL's Annual accounts information has been provided in page 165-266 of BHEL's annual report for the year 2014-15. It includes standalone annual accounts as well as consolidated financial statement. The consolidated financial statement includes its subsidiary and joint venture as well. The list of such entities is given in the table:

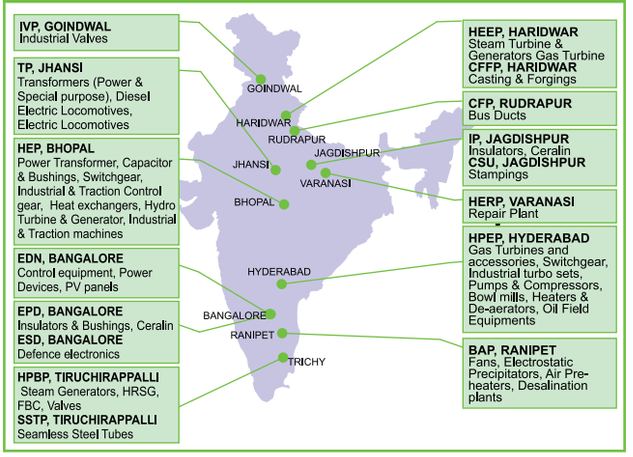
Subsidiary:
• BHEL Electrical Machines Limited
Joint Venture:
• BHEL- GE Gas Turbine Services Private Limited
• Dada Dhuniwale Khandwa Power Ltd.
• Raichur Power Corporation Ltd.
• NTPC-BHEL Power Projects Limited

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

Major activities of BHEL which has environmental impacts are being carried out in our manufacturing units and there robust systems have been developed over time for data capturing and reporting.

The data on Environmental aspect **EN1: Materials** includes material use at site also. However, for all other aspects, the report is limited to the manufacturing units as shown in the figure below for reporting boundary for Environmental Indicators. At project sites, our projects are under various stages of execution and as of now, except data capturing for material, other environmental aspects are not being monitored and controlled in a robust manner.

Reporting Boundary for Environmental Indicators



Stakeholder Identification & Engagement

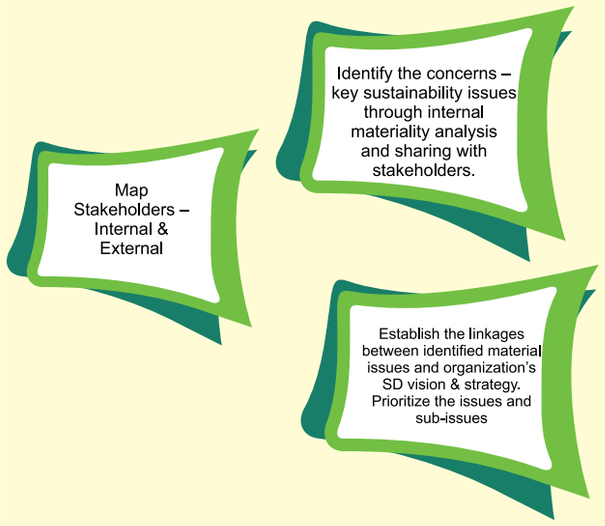
BHEL's identified stakeholders broadly fall into six categories. These are the stakeholders which either affect the business of BHEL or are getting affected themselves by our business and this relationship forms the basis on which these specific stakeholders have been identified by the organization.

Activity	Methodology	Result
Stakeholder identification	A. Brainstorming session by Nodal Officers for Sustainability B. Feedback from other stakeholders	1. Society, 2. Employees, 3. Shareholder, 4. Customers, 5. Suppliers, 6. Government

With this identified stakeholder groups, 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.

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.

Stakeholder Engagement Framework at BHEL



Some of the stakeholder engagement activities undertaken during 2014-15 are given in the table below:

Modes of Stakeholder Engagement & Activities

Stakeholder Group	Mode of Engagement	Typical list of activities conducted in 2014-15
Customer	Customers' meet, surveys	• Customer Satisfaction Surveys • Continuous interaction and feedback by CMD, Functional Directors and Marketing Groups at Corporate level • Assessment of present and future needs by Unit/Regional Heads and concerned General Manager once in 3 months for every customer and also need based • Assessment of short/midterm needs once in two months for every customer by Head of Functions in manufacturing units • Plant execution schedule by Site-in-charge everyday • Annual customer meet by Top & senior leaders
Suppliers	Vendors Meet	• Vendor Satisfaction Surveys by units • Daily Milestone review by Project Site In-charge • Short & midterm need assessment by senior leaders daily

		• Contract execution by head of functions as and when needed • Vendor meets at unit level • Forge Partnership through MoUs/Rate Contracts by senior leaders
Government	MoU, Reports	• Parliamentary Committee meetings • BHEL has Government of India as a majority shareholder. Thus, apart from the above, BHEL has several established mechanisms in place to communicate with Government authorities • Interaction with Ministry of Heavy Industry & Public Enterprises at senior most level, from day to day performance issues to Government Policy related issues • Adherence to values/ processes in line with guidelines given by Parliamentary committees, Chief Vigilance Commissioner, Government Auditors, Ministry of Heavy Industry, etc.
Employees	In-house magazine, Message from CMD, Employee engagement survey, Joint Committee, Plant Council, Shop Council	• Employees Satisfaction Surveys • Top down communication through Management Committee meetings, Monthly Communication meetings, Top management BE meeting, Project review meeting • IT enabled communication e.g. Internet and e-mails, Intranet, e-Map, etc. • Display Boards, Plasma TV displays, etc. • Bottom up communication through Joint Committee, Plant Council, Shop Council, General communication meeting, etc. • Horizontal communication through daily communication meeting at sites/shop floor, Video Conferencing, Audio Conferencing, IP phone, etc.
Shareholder	Annual Report, Press Releases	• Annual General Meeting • Conference calls/ One to one meeting with Investors and participating in various investor conference in India and abroad by CMD/Functional Directors/Executive Director (P&D)and other senior officers.

		• In order to ensure transparency, a separate section on Corporate Governance is annexed every year with the Annual Report of the Company, wherein all disclosures are made as per the listing requirements • Disclosure of information on the internet Filing of information with Stock exchanges News Releases and Press conferences
Society at large	CSR Programme, Baseline Survey / need identification	• CSR Projects, • Interaction with people through site visits for CSR, Meeting with NGO's representatives • Society Satisfaction Surveys by units • Continuous interaction with Local administration/District authorities by senior leaders at units/project sites • Medical camps/ Blood donation camps at units/Sites/adopted villages, etc. • Creation of educational infrastructure for local people at manufacturing units • Other social welfare initiatives

Some of the key topics and concerns which have been raised by the stakeholders during 2014-15 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
Order book reduction due to increasing competition, excess domestic manufacturing capacities and low business sentiments.	• Focus on EPC business • Enhancing techno-commercial competitiveness • Increasing scope of offer • Improving performance parameters
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
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 contribution of green energy in our operations	At-least 2% of energy is to be sourced through renewable in our operations
Safety performance at site	Safety Performance review is being done more critically

	• Safety organization at project sites is being strengthen • Heightened efforts being made to involve all the employees in improving safety performance
Expectation of stakeholders in vicinity of our geographical footprint	More focused CSR initiatives are being taken to meet the expectations of the stakeholders. Sustainability and scalability are the two important parameters identified for such projects

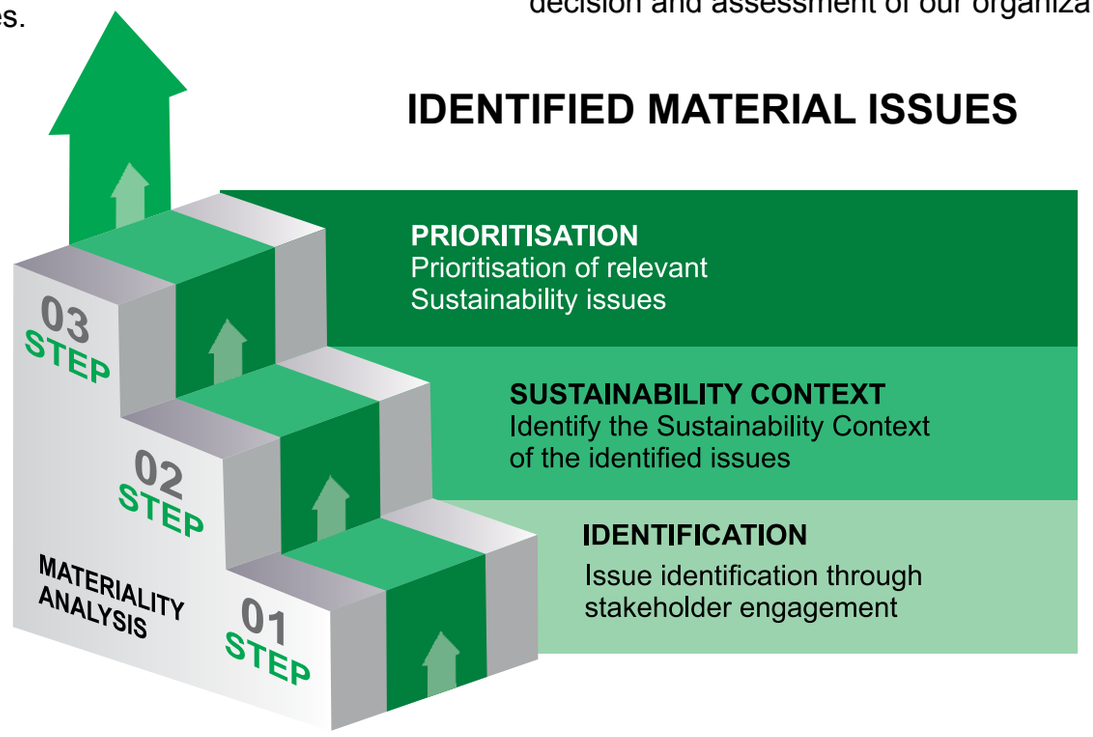
Indian business environment and stock market remained volatile during the year. Apprehensions were repeatedly raised about BHEL's ability to consistently reward its investors given the dwindling order book. In this backdrop, BHEL remains in touch with investors and analyst community communicating company's 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.

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.

Process for defining report content and aspect boundaries

BHEL's process of materiality analysis is basically a three stage process and the same is shown in the figure captioned Materiality Analysis.

Initially, gamut of issues which are significant for the stakeholders of the company and which affect or have a potential to affect the sustainability of business of the organization are identified. It is done through brainstorming as well as stakeholder engagement. Now in the next step, these issues identified are analysed in sustainability context which defines how important the issue is for BHEL's Economic, Environmental and Social Impact and how the issue is going to influence the stakeholders' decision and assessment of our organization.



Then the relevant issues which are material to company as well as the stakeholders are prioritised through a simple matrix form which is shown in the figure captioned BHEL's Materiality Matrix.

For the reporting period 2014-15 the following issues have been found to be key material issues for the company and the same are reported in this document in detail:

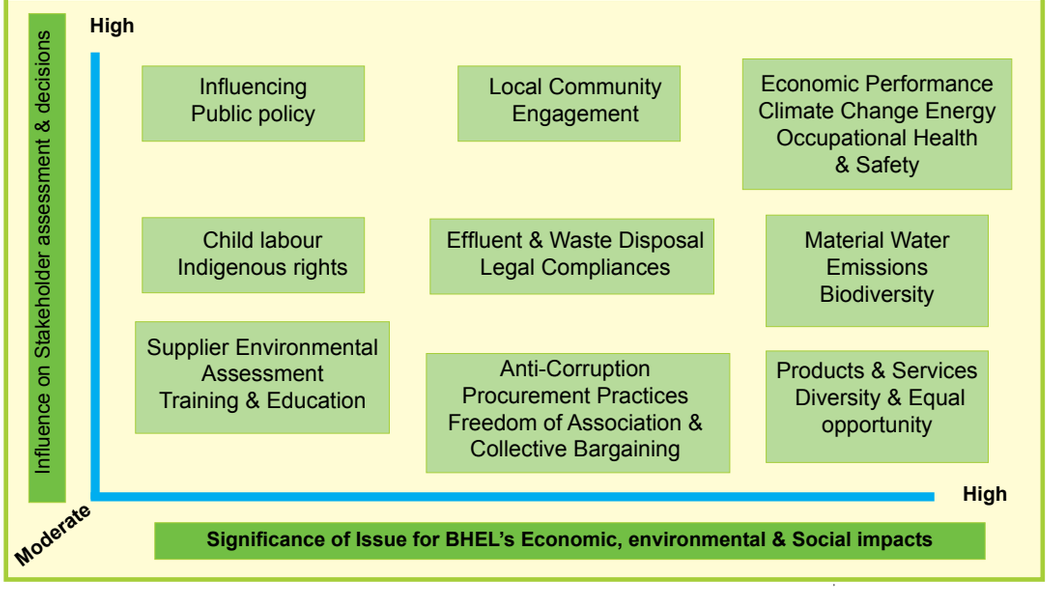
Identified Key Material Issues

- Economic Performance
- Material consumption
- Energy
- Water
- Occupational Health & Safety
- Effluent and Waste
- Climate Change

As regards the boundary of the material aspects identified, the data reported for Economic performance and material consumption is for entire BHEL which includes our project sites also. However, the data pertaining to aspects of environment is limited to the manufacturing units as listed in the diagram titled "reporting Boundary for Environmental Indicators" as shown in page no 40. It may also be noted that major impact of our product and services lies outside our boundary during the life cycle of power plant which is beyond the control of BHEL. To minimize the environmental impacts of our products and services, BHEL is continuously striving for more efficient power plant equipment and development of greener technologies. Also, emission during transportation of our products across our presence is significant, but is an area which is not being tracked as of now.

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.

BHEL's MATERIALITY MATRIX



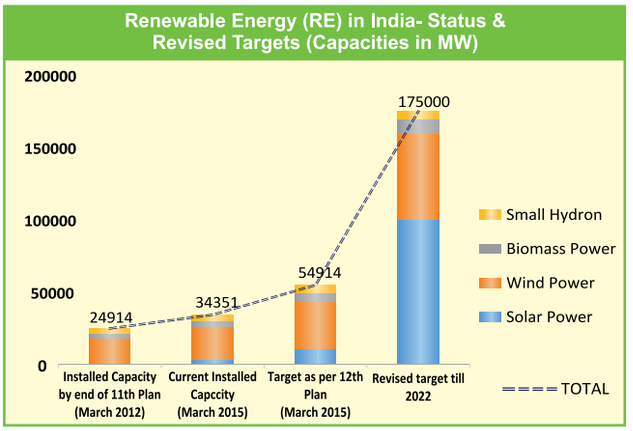
Our Economic Performance

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.

Climate Change - risk and opportunity

Worldwide there is a growing realisation amongst all the stakeholders that Climate Change and GHG Emission are correlated. Our country is facing the challenge for sustaining its rapid economic growth while dealing with the global threat of climate change. To deal with the climate change issue in a holistic way, our country, in 2009, launched National Action Plan on Climate Change (NAPCC) which 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.



Now the Government of India has stepped up India's solar power capacity target under the Jawaharlal Nehru National Solar Mission (JNNSM) by five times, reaching 1,00,000 MW by 2022. The target will principally comprise of 40 GW Rooftop and 60 GW through Large and Medium Scale Grid Connected Solar Power Projects. With this ambitious target, India will become one of the largest Green Energy producers in the world, surpassing several developed countries.

In line with the concern being shown by stakeholders worldwide and the Government of India in particular, BHEL is taking all measures to reduce the GHG emission in its operations. To mitigate the risks of climate change, BHEL is progressively reducing the carbon footprint of its products & services as well as its internal processes across the organization. These efforts include switching over to cleaner fuels, energy conservation / efficiency measures, renewable energy measures like – setting up of grid interactive as well as rooftop solar power plants, using solar street lights, putting solar water heaters, etc. Through various energy efficiency and renewable energy measures the organization has reduced its carbon footprint by 2410 MT CO_2- e during 2014-15. Further, the grid interactive 5 MW_P solar plant at BAP

Ranipet unit has generated 6.232 Million units of green electricity during 2014-15 and reduced the carbon footprint of BHEL considerably. Company has also taken number of projects related to water and energy conservation, tree plantation, waste management, resource conservation, etc.

The cumulative PV installations in the country have grown from 38 MW in 2010 to over 3,700 MW by end of FY15. Power generated from solar energy is gradually moving towards grid parity as a result of softening of input costs and competition. Policy initiatives such as mandatory Renewable Purchase Obligation (RPO) and grant of priority sector lending status by RBI will drive demand and investment in the sector. BHEL set a new record during in its Solar Photo Voltaic business in a single year by supplying 50 MW_P of SPV modules during 2014-15.

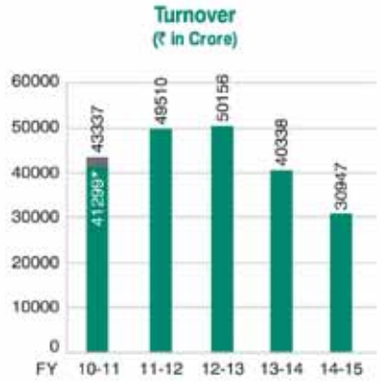
The revision in the target of renewable energy capacity addition in our country has presented an excellent opportunity for our company to leverage our capability in Solar business. At present BHEL offers EPC solutions from concept to commissioning for grid connected and standalone PV applications ranging from kW to MW size plants which include supply of PV modules and Balance of System (BOS), Civil, E&C and O&M. Additionally, BHEL manufactures space grade solar panel and space grade batteries in association with ISRO. All Indian satellites launched by ISRO are equipped with BHEL manufactured solar panels since 2002 and batteries since 2005. BHEL is also geared up for offering Power Block on EPC basis for Concentrated Solar Thermal Power projects.

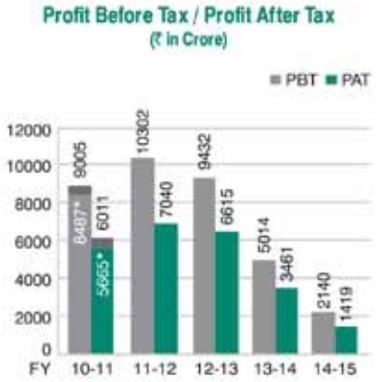
BHEL is planning to ramp up PV cell & module production capacity and enhance EPC capabilities to address the domestic market demand.

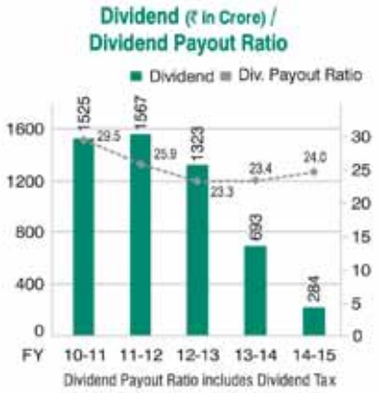
India has a huge hydro power potential of 148 GW, out of which only 42 GW has been realized till date. Steps have been taken to attract investments into the hydro sector and increase the falling share of hydroelectricity in the country's installed capacity mix. Government is planning hydropower Purchase Obligation (HPO), which will obligate the power distribution companies to purchase power from hydro power plants. This has led to signs of revival in hydro power segment. BHEL is fully geared up to meet the requirement of small hydro power plants of 10-25 MW unit rating capacity in the country and outside.

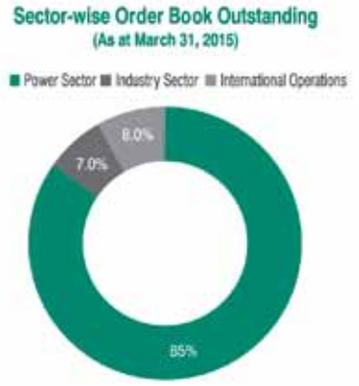
Financial Performance Highlights

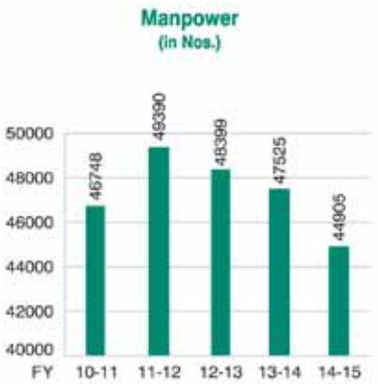
Despite various issues relating to power projects like fuel linkages, fund constraints, land acquisition, etc., BHEL recorded turnover of ₹30947 Crore in the year 2014-15. Net worth of the company has gone up by 3.14 %. The highlights of our economic performance is shown in the figures below.

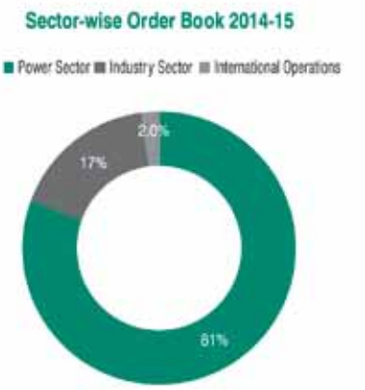










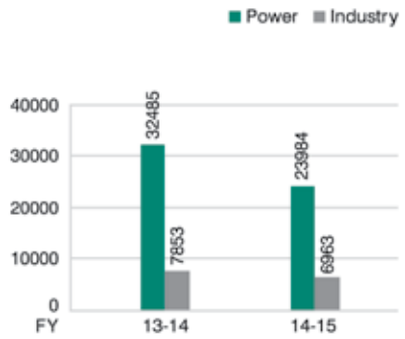


*Excluding one-time impact of change in policy of warranty obligation for earlier years

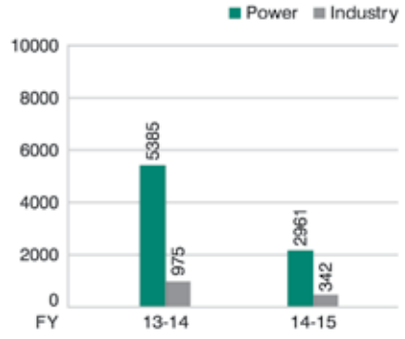
(₹ in Crore)

	2014-15	2013-14
Turnover	**30947**	40338
Profit before Tax	**2140**	5014
Profit after Tax	**1419**	3461
Retained Earnings	**1078**	2650
Total Assets	**68467**	72791
Net Worth	**34085**	33047
Long Term Borrowings	**61**	105
Debt:Equity	**0.01**	0.01
Per share (in ₹)		
Net Worth	**139.26**	135.02
Earnings	**5.80**	14.14
Employees (Nos.)	**44905**	47525

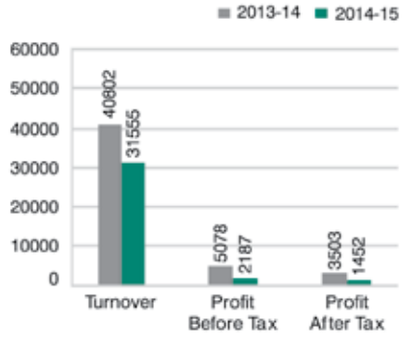
Segment-wise Revenue
(₹ in Crore)



Segment-wise Results
(₹ in Crore)



Consolidated Financial Performance
(₹ in Crore)



10000 MW+
Power projects commissioned/ synchronized p.a. 3 years in a row

150 GW+
Power Generating Equipment installed till date

Market Share
72% in Indian Power Sector

Innovation
453
Patents & copyrights filed

44,905
No. of Employees

4.20
Training Man-days per Employee

CSR & SD Expenditure
2%
(average of net profit during 2011-14)

10,510
vocational trainees &
29,494 Act-apprentices trained

Orders in Hand
₹1,01,000 Crore

Hydropower projects commissioned in India during 2014-15
100% by BHEL

Value addition statement

The statement for value addition is provided in the table below. BHEL's Profit after tax (PAT) for the year 2014-15 stood at ₹ 1419 Crore.

Value Addition Statement							(₹ in Crore)
Description	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09
A. Generation of Value Addition							
Value of Production (less excise duty)	29755	37077	47219	47815	41527	33598	27351
Less - Direct Material, Power & Fuel and Payments to Contractors	17772	22031	27759	28717	23051	20427	17458
Value Added	11983	15046	19460	19098	18476	13171	9894
Less - Other Operating Exp.	3224	2982	3196	2479	3461	845	567
(Net of income)							
Net Value Addition	8759	12064	16264	16619	15015	12326	9327
% to value of production	29.44%	32.54%	34.44%	34.76%	36.16%	36.69%	34.10%
B. Application of Value Addition							
Employees payments	5450	5934	5753	5466	5410	5243	4113
% to net value addition	62.22%	49.19%	35.37%	32.89%	36.03%	42.54%	44.10%
Depreciation	1077	983	953	800	544	458	334
% to net value addition	12.30%	8.15%	5.86%	4.81%	3.62%	3.72%	3.58%
Financing charges:							
- Interest on borrowings	92	133	125	51	55	34	31
% to net value addition	1.05%	1.10%	0.77%	0.31%	0.36%	0.27%	0.33%
Tax Provision (Income Tax., Def. tax, FBT & Prior Period)	721	1554	2818	3262	2994	2280	1711
% to net value addition	8.23%	12.88%	17.32%	19.63%	19.94%	18.50%	18.34%
Dividend (incl. dividend tax)	341	810	1544	1821	1775	1332	974
% to net value addition	3.90%	6.71%	9.49%	10.95%	11.82%	10.81%	10.43%
Retained Profit	1078	2650	5071	5219	4237	2979	2164
% to net value addition	12.30%	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 2014-15, page 195. 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 footprint across the country and aboard entails direct and indirect economic impact on society. It has a multiplier effect in its vicinity with regards to economic activities. When the manufacturing units of the company were initially getting established, it was mostly in remote location. With time it has given rise to an industrial ecosystem which has emanated out of secondary economic impact created by it. Now our units have come into the heart of the city in most of the locations. BHEL does not hire

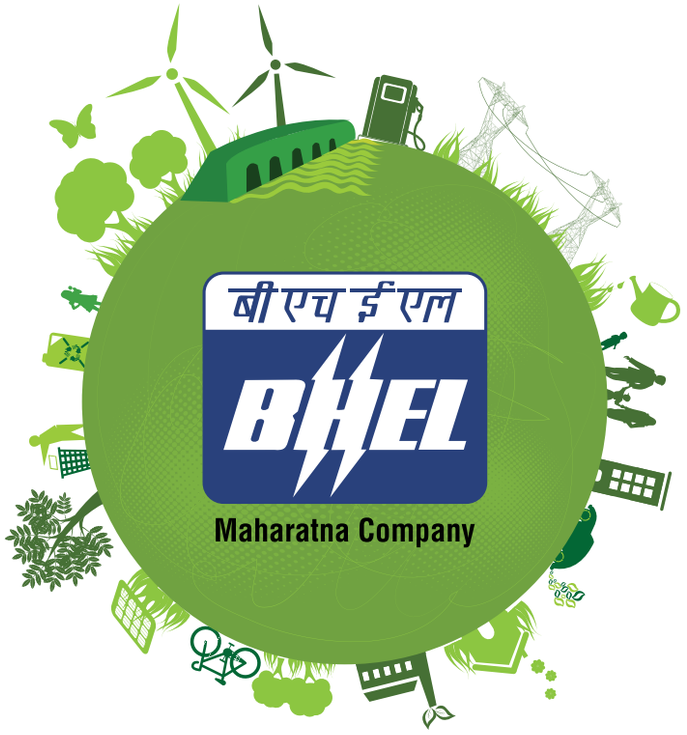
employees on temporary/ casual basis. However, BHEL awards job / works contracts to Contractors at its various Units/ Divisions / Departments as per organizational needs which contribute immensely to the local economic activities in our vicinity.

Further, we have a structured Corporate Social responsibility programme aimed at inclusive growth with special emphasis on our area of presence. We have been doing CSR work since the inception of our organization, however it has become more streamlined after introduction of DPE guidelines on CSR and subsequently Companies Act, 2013. Lot of projects are being taken up under CSR by us which have resulted in creation of social infrastructure and capacity building of the populace near our operational footprint. We undertake CSR initiatives for implementation through in-house capabilities or 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 ₹ 102.06 Crore has been spent in 2014-15. The details are given in the chapter "Societal Performance" in this report.

Supporting marginal supply chain partners

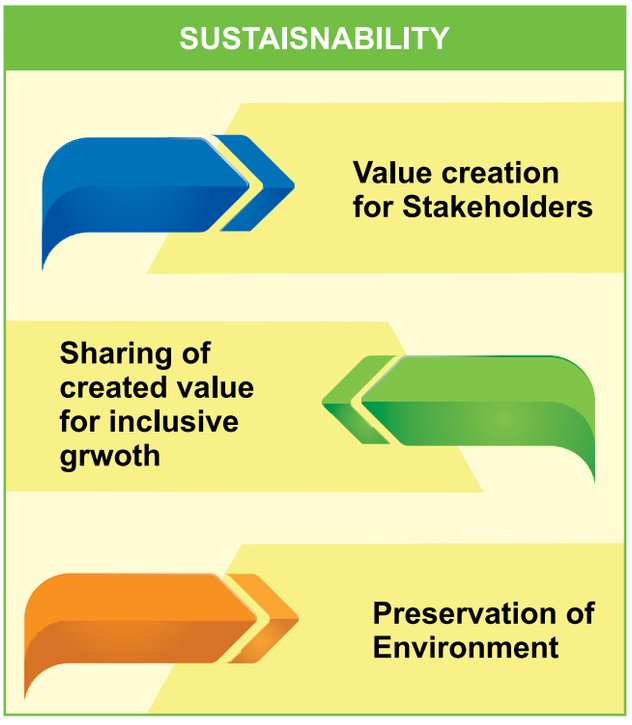
BHEL has pioneered entrepreneurship development in and around its manufacturing units by providing regular support to SMEs through knowledge sharing, training and development and resource mobilization, etc. During the FY14-15, BHEL has procured about 17% of its total procurement from Micro and Small 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.



Our Environmental Performance

Management Approach - Sustainability

For BHEL, Sustainability is about preserving our natural environment which is the source of our survival & wellbeing while creating value for the stakeholders in a socially acceptable manner. In other words, as a responsible corporate citizen, we are committed for putting our all-out effort for preservation of environment while achieving higher growth in the organization and sharing this created value with the society in more inclusive manner. 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.



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".

We firmly believe that 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 and discloses its performance on sustainability issues through annual Sustainability Report.

Sustainability Framework

BHEL has formulated a 'Sustainable Development Policy' keeping in view the scale and nature of activities, products & services. This policy is the guiding force for us which inspires all our endeavours to venture into the realms of sustainable development. This policy has been incorporated into our corporate strategy through BHEL's strategic plan 2012-17.

Focus areas have been identified in this Strategic Plan for ensuring our continued impetus on Sustainability through our products, service as well internal operations across the organization. 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 2014-15 are material, energy, water, effluents & waste. The data pertaining to these identified material issues are provided in the following sections.

Closing the material loop

There is continued stress on conservation and effective utilization of various natural resources in manufacturing activities and at project site. The Company has a strong institutionalized mechanism to recycle the products and wastes 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 100% recycled product. BHEL is also implementing e-procurement in phased manner as business improvement and sustainable business practice. The table below provides us the data about resource consumption by entire organization in last 5 financial years.

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, this cost varied from 42% to 50% of our gross turn over [GTO] figures during the last 5 years. As the projects which we are executing are having a cycle time of 3-5 years, the relationship between GTO and material consumption may not be correlated in a simple way.Further, 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 absolute physical terms.

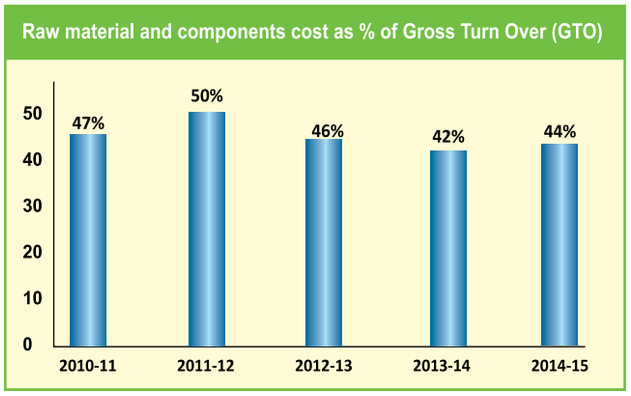
Some of the measures adopted in BHEL to minimize waste (Scrap) generation at the source itself are listed below:

- Computerized nesting plan of each steel plate to adjust maximum number of jobs in a plate
- Preservation and reuse of Off-cuts of size > one square meter generated after nesting & cutting to cut smaller jobs, like strong backs lifting lugs & tackles, etc.

These small but significant steps help us in reducing use of precious natural resource 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.

Statement of Material consumption for 2010-2015 (5 years) (Value in crore ₹)

	Year →	2014-15		2013-14		2012-13		2011-12		2010-11	
Group of Material	Units	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Ferrous material	MT	233766		252360		359639		647585		630011	
	Meters	4990653		5894301		12455008		16084481		13749271	
	Nos	1381094		2744341		4484045		5839126		5184210	
	Sq.M	4580		201723		16181		50035		958	
	Kg.	36771808		36344557		65601635		64246360		67442605	
	Others	110		680		461		143		93	
			2415.50		2522.14		4517.67		5774.15		5017.28
Non- ferrous material	Units	Quantity		Quantity		Quantity		Quantity		Quantity	Value
	MT	9994		13253		10757		6101		23782	
	Meters	1417133		1316512		2628311		3050477		1757921	
	Nos	105614		195572		338013		211852		274269	
	Sq.M	95		327		4285		96		242	
	Kg.	5674244		5749753		7896378		6967175		8015569	
	RL	16397		14680		23838		26960		27781	
	Others	25040		29781		34565		444		688	
			381.37		425.72		597.11		554.30		497.14
Insulating Material	Units	Quantity		Quantity		Quantity		Quantity		Quantity	Value
	Meters	44533937		39478186		55491713		79130216		68635813	
	MT	14508		14031		23715		33058		76561	
	Nos	188061		208777		898553		469400		730866	
	Sq.M	3473306		3681993		2749575		2024396		1653750	
	Kg	472804		674542		711885		1242793		987949	
	LT	6037487		6729480		5410250		5268930		7290736	
	RL	112677		80972		235629		135391		216335	
	M2	114513		163327		190245		171330		113102	
	KL	0		6748		3493		7460			
	ST	461		112		237		509		411	
	Others	24934		7660		112034		31596		41404	
			219.83		277.08		305.72		280.41		227.51
Insulated cables and Magnet wires	Units	Quantity		Quantity		Quantity		Quantity		Quantity	Value
	Meters	6356213		6015498		2777834		3762371		2786052	
	Nos	49260		129112		459681		153753		175718	
	Kg	445209		8163		12504		6149		9661	
	Others	5		4							
	Units	Quantity	78.97	Quantity	86.27	Quantity	45.62	Quantity	60.09	Quantity	41.02
Components			6040.61		8971.01		12635.20		10739.08		10504.74
Others			4567.71		4859.04		4942.52		7141.32		3129.90
Total cost of consumption of raw materials & components (₹ Crore) [MC]			13704		17141		23044		24549		19418
Gross Turnover (₹ Crore) [GTO]			30947		40338		50156		49510		41299



Overall, more than 70 projects have been taken across various units of BHEL in 2014-15 related to reduction/recycling/reuse of waste across BHEL with an objective of reducing use of virgin material and consequently reducing the environmental footprint of BHEL. Some of the activities related to material and natural resource management carried out during 2014-15 include:

HEP Bhopal:

- **Recycling of cutting fluid [coolant] used in machining**

HPEP Hyderabad:

- **Recycling of Ferrous and non-ferrous scrap (368.5 MT MS Scrap)**
- **Enhancement of shelf life of paint through additives and**
- **Fabrication of a 20 MT Gantry Crane using waste material**
- **Recycling of 368.5 MT of MS scrap and nearly 30% reduction in paper usages**

TP Jhansi:

- **Use of oil skimmer for collection of waste oil from drainage water**

PPPU Thirumayam:

- **Development of Hydraulic and lubrication oil reclamation system**
- **Reuse of 200 MT cut bit steel pipes as raw material at PPPU Thirumayam**

EPD Bengaluru:

- **Recycling of fired-rejected insulators for making Grog granules which is used in Cap & Disc shell assembly in manufacturing process**

HEEP Haridwar:

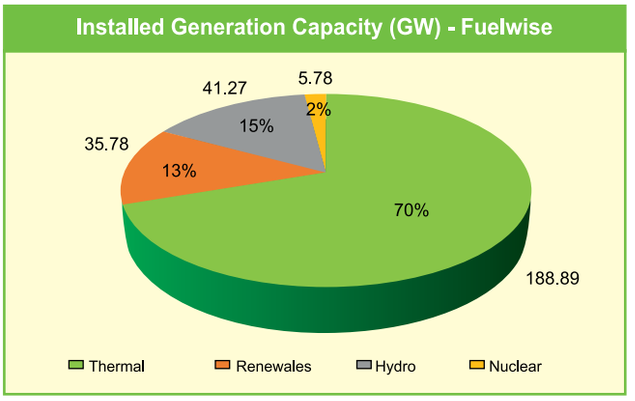
- **About 31 MT of used /waste oil has been recovered from coolant recovery system and with the help of oil skimmers fitted on main waste water drain**

In addition to these activities, under Swachh Bharat Abhiyaan, a total of 1.5 million documents were scanned and fed to a documents management system, WRENCH for easy storage and retrieval of documents at our ISG Bengaluru facility. It has helped the unit in moving towards becoming a paperless office and thus reducing use of paper which is a precious natural resource.

Energy

Installed generation capacity in our country stood at 271.72 GW as on 31st March 2015 (source: Ministry of Power). Out of this, 72.3 GW has been installed during the last 3 financial years itself (April 2012 to Mar 2015). This shows that lot of progress

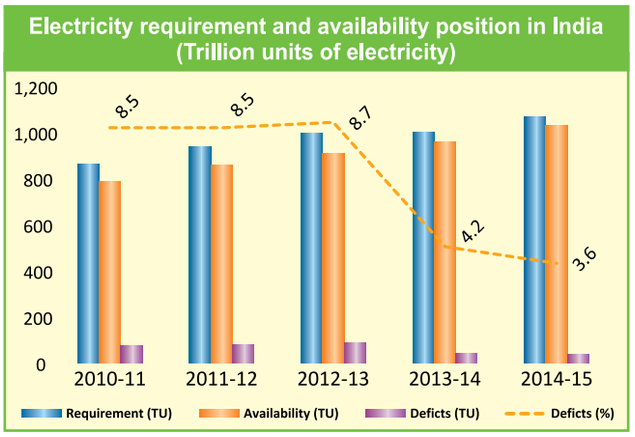
has been made with regards to addition of generation capacity into our country's electricity scenario. At present, 70% of the installed generation capacity is contributed by convention thermal sources and 13% is the contribution of renewable energy sources. Power generation during the year 2014-15 is 1048.403 Billion Units, showing a growth rate of 8.4% over the previous year which is the highest growth rate in the last two decades (source: http://pib.nic.in).

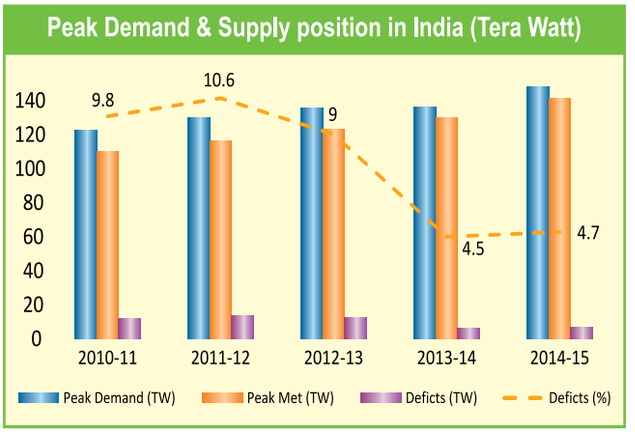


If we glance at the data of electricity generation, electricity requirement, peak demand and peak met data for the last 5 years as shown in the table, we find that the deficit is reducing now and from 8.5% of annual deficit in 2010-11, we have come down to 3.6% 2014-15. With regards to peak demand and supply gap this deficit has come down from 9.8% in 2011-12 to 4.7% in 2014-15.

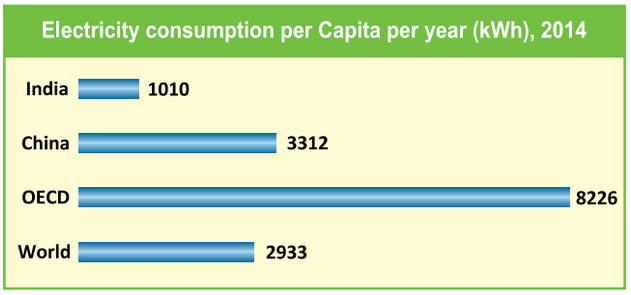
Power supply position in the country during 2010-11 to 2014-15
(Source: http://powermin.nic.in/power-sector-glance-all-india) :

Year	Energy				Peak			
	Requirement	Availability	Surplus(+)/ Deficits(-)		Peak Demand	Peak Met	Surplus(+)/Deficits(-)	
	(MU)	(MU)	(MU)	(%)	(MW)	(MW)	(MW)	(%)
2010-11	8,61,591	7,88,355	-73,236	-8.5	1,22,287	1,10,256	-12,031	-9.8
2011-12	9,37,199	8,57,886	-79,313	-8.5	1,30,006	1,16,191	-13,815	-10.6
2012-13	9,95,557	9,08,652	-86,905	-8.7	1,35,453	1,23,294	-12,159	-9
2013-14	10,02,257	9,59,829	-42,428	-4.2	1,35,918	1,29,815	-6,103	-4.5
2014-15	10,68,923	10,30,785	-38,138	-3.6	1,48,166	1,41,160	-7,006	-4.7





However, if we see the data for per capita electricity consumption data for 2014, India's per capita electricity consumption stood at 1010 units per year which is almost 1/3rd of world average of 2933 units per annum. It clearly shows that large number of people are still without electricity in our country. It makes a compulsive case for judicious use of electricity in our day to day life and especially for the operations involved in our industrial sectors.



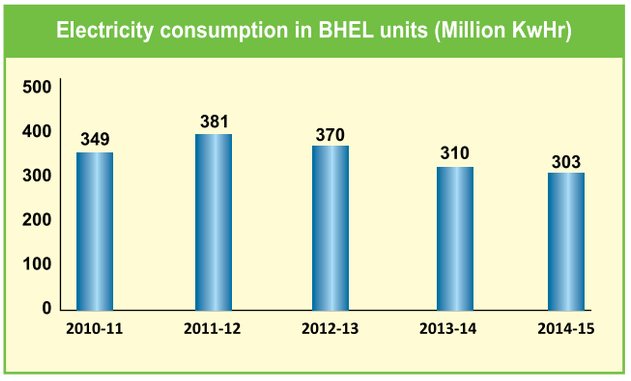
BHEL, being a major player in manufacturing of power plant equipments in India, is all the more aware of its responsibility towards energy conservation, energy efficiency and use of green energy in its operations. This will ultimately help us in achieving reduction in conventional energy usages, enhancing usage of green energy in our energy mix and ultimately moving towards use of sustainable energy mix in our operations.

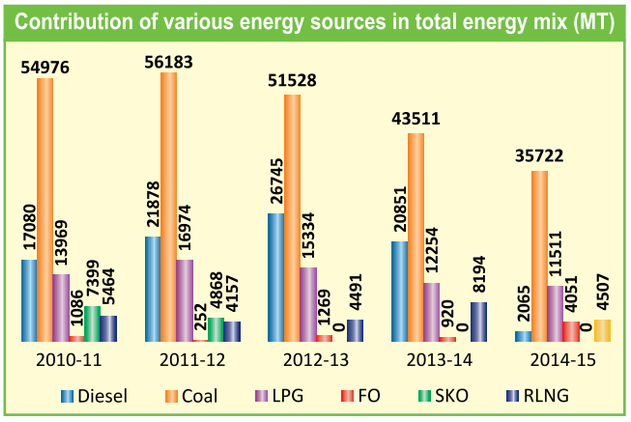
The total energy consumption by primary energy source across all the units of BHEL for the last 5 years is shown in the figure.

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 enhanced use of cleaner fuels, like Natural Gas at its CFFP Haridwar unit and LPG at Hyderabad unit. This year the diesel consumption in our units has gone down drastically.

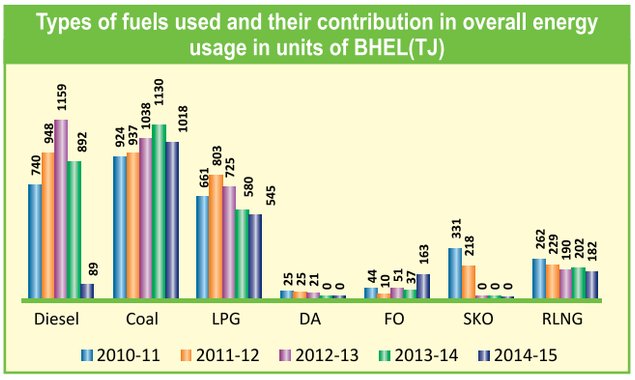
Total Direct & Indirect energy consumption in BHEL units in TJ

Description	Energy Consumed in TJ (2014-15)	Energy Consumed in TJ (2013-14)	Energy Consumed in TJ (2012-13)	Energy Consumed in TJ (2011-12)	Energy Consumed in TJ (2010-11)
Direct Energy					
Primary Energy Fuels Consumed (Diesel, Coal, LPG, Kerosene, etc.)	1996.84	2840.26	3183.66	3169	2986.48
Primary Energy Produced (Through Solar Energy generation)	22.24	3.375	0.49	0.11	0.21
Indirect Energy					
Electricity Consumed	1092.28	1116.76	1330.80	1372.49	1255.80
Total Energy consumed	3112	3960	4514	4542	4243
Gross Turnover					
(₹ **Crore**)	30947	40338	50156	49510	41299
Energy Intensity					
(MJ /Lakh ₹ of GTO)	1.01	0.98	0.90	0.92	1.03
Energy Productivity (Lakh ₹ GTO achieved / MJ)	0.99	1.02	1.11	1.09	0.97

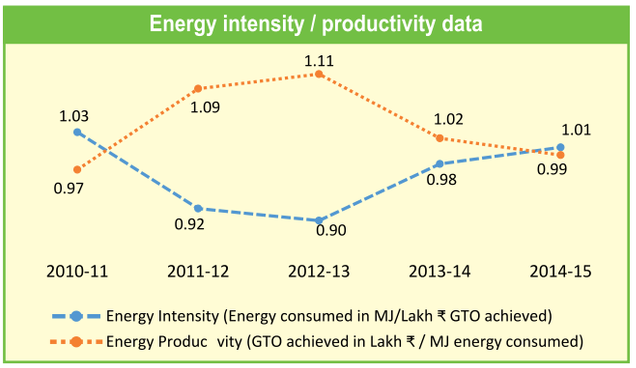




As can be seen from the figure, the share of energy sourced through coal burning has come down consistently in our units. Also, the share of energy sourced from diesel has also come down drastically this year.



The figure for total direct & indirect energy consumption also includes the data for energy intensity (defined as energy consumed in Mega Joule per lakh ₹ of gross turn over achieved) and energy productivity (defined as Gross turnover achieved in lakh ₹ per Mega Joules of energy consumed). The average energy intensity (EI) figure for last 5 years stood at 0.97 MJ/Lakh ₹ of GTO achieved whereas the average energy productivity (EP) figure stood at 1.04 Lakh ₹ of GTO achieved / MJ of energy consumed. During 2014-15, this figure stood at 1.01 for EI & 0.99 for EP. However, it may be noted that the data for GTO encompasses entire BHEL whereas the energy usages data is restricted to reporting boundary for environmental parameter only. Furthermore, it can be clearly seen from the data that EP figure has peaked when the Maximum GTO was achieved and now it has come down and converse is true for energy intensity figure which bottomed out in 2012-13 when BHEL achieved the record turnover of ₹50156 Crore.



Further on tonnage basis, it can be seen that use of fuels like coal, diesel, etc. which requires physical carriage through means of transportation is going down, which directly contributes towards savings in indirect energy uses for transportation of fuels, and thereby reducing the carbon footprint of BHEL.

Energy Efficiency / conservation efforts at our units

The energy management policy of BHEL lays emphasis on energy efficiency, use of cleaner technologies, energy conservation and most importantly involvement of employees.

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.

Energy efficiency / conservation efforts are given major thrust in the management programme of BHEL.

Nature of Activites pertaining to ENCON generally carried out in BHEL
Energy Awareness - Conducting awareness programme at offices, factory, site and township
Energy Conservation - Identification of thrust areas for conservation of energy by arresting leakages, use of alternate fuel, etc.
Energy Efficiency - through modification of existing systems, establishment of a system for collection, analysis, and reporting on the organization's energy consumption and costs
Use of Renewable energy resources
Periodic energy audits for finding opportunities for improvements
Adopting concepts of Green Buildings

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.

List of major activities performed in the year 2014-15
Energy Conservation Projects (34 Nos.) were implemented across the company, as suggested by the specialised agencies in the Energy Audit reports. The projects included. • Installation of 5 Star Rated Air-Conditioners / Fans • Energy Efficient Compressors • Energy Efficiency Lighting (LED/ CFL), SWHS (Solar Water Heating System) • VFD (Variable Frequency Drives) • APFC (Automatic Power Factor Control) • Turbo Ventilators • Arresting Leakages in compressed air systems • Occupancy & Photo Sensors (to turn ON/OFF lights/ AC) • Replacement of conventional (old resistive type) regulators with Electronic Regulators for fans, etc.
Specific Energy Consumption (Energy/ Fuel units in kcal/ Gross Turnover – ED) has improved by 7.7% over the base level: 132 kcal/₹ Lacs in 12-13.
All the employees working at CFFP Haridwar were imparted awareness training on Energy Conservation as a part of preparedness for ISO 50001 (Energy Management System).
National Energy Conservation Day was celebrated across the company on 14th December. Various activities related to ENCON were organized for awareness generation of employees.
Energy Audit was conducted by specialized agencies at Trichy, Varanasi, Ranipet, Goindwal, Jhansi and EDN-Bengaluru units.

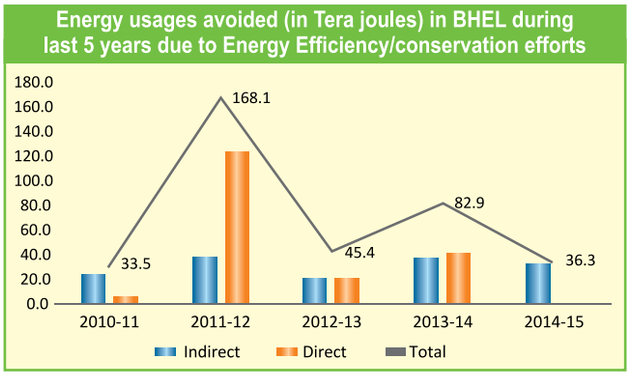
List of major projects taken in the areas of energy efficiency / conservation during the reporting period is given in the figure below. From the figure it can be seen that the projects taken during 2014-15 are going to save around 7.15 Million Units of Electricity per annum.

Major ENCON projects undertaken in BHEL during 2014-15

Sl. No.	Name of unit/ Division	Project Title	Energy Saving (kW-hr / Yr.)
1	HPEP-Hyderabad	Installation of VFDs for EOT Cranes	9000
2		Installation of 3W LED Lamps on Machine Tools - 100 Nos.	16800
3	HEP-Bhopal	Repair of 18 Nos. burners in SR furnace 1/B/2031 to minimise leakage of LPG.	30 ton LPG Gas
4		To install new compressor of 5HP in 2/A/2079 of Blk-1 for 3rd shift in place of 600HP (Gas plant)	23760
5		Renovation of 75 kw Oven (11/B/2237) in CIM.	10000
6		Restoration of compressor (5HP) in place of 600 HP (gas plant) in 3rd shift for seam and spot welding machine of block 1b.	46280
7		Installation of LT APFC panels in Block Substations (4 Nos.)	55425
8		Installation of Air turbine ventilator (300 Nos.)	81000
9		Electrical interlocking of all secondary equipments like Dust collectors, Panel Air Conditioner, Air Driers etc. with Parent machines in PRM.	5000
10	TP-Jhansi	Installation of another condensate pump for much efficient condensate transfer to Boiler house.	17091
11		Airline loss reduction in new fibre airline in Bay-9 and bay-10.	144000
12		Refractory replacement in 6 MT boiler.	682171
13		Use of screw compressor in compressor house.	103419
14		LED and CFL installation in Jayanti Building conference hall	19520
15	SSTP-Trichy	Installation of automatic power factor control system	374400
16		Replacement of 70 W MH street lamps with 25 W LED Lights	19651
17		Identification and arresting compressed air leakage points	262790
18	CFFP-Haridwar	Installation of R.O. Plant in boiler to minimize scaling	1400478
19		Replacement of T-5, 2 X28 W, fittings in place of fluorescent Tube light Fittings, 2X40W in CDS.	110411
20		Reconditioning of structural parts and refractories of 70T Bogie hearth Furnaces in Forge Shop (1 No. for Vulcan Make & 1 No. for Wesman Make)	1457427
21	HEEP-Haridwar	Modernisation of Bogie furnace, Plan no. 0-45 of Block-2, 540KW , 16600 mm X 6200 mm X 7800 mm	691200
22		Install more, bigger and proper transparent sheets by replacing some intermittent top and side asbestos/metallic sheets (similar to what has already been done at extended portion of block-1 and New ACM block) so that there is no need to switch ON lights in day time (Planned 500 square meter of sheets replacement).	480000

23		Use of T5 Fluorescent Lighting in HR & IT Block, PV Bldg-18	23846
24		Introduction of Auto start & stop line mechanism for SC&PV process Chilled water line	40307
25		Up gradation of east ground floor AC chiller plant	51100
26	BAP-Ranipet	Arresting of leakages & wastage in compressed air line at various locations inside the shop floor.	137000
27		Replacing of 600 Nos. 36W / 40W Tube lights by 18 Watt, LED lamps in the existing light fittings.	38880
28	HPBP-Trichy	180 number of Solar LED Street lights in HPBP Complex	118260
29		Introduction of 2x50kW Grid assisted Solar PV panel for Bldg-2&4 and Bldg-24 lighting load (on pilot basis)	150000
30		Changing of 100 watts bulbs by 11 watts CFL lamps (25 Nos.) on the machines	13350
31	PPPU-Thirumayam	Installation of De-Tuned APFC Panels	249500
32	CSU & FP-Jagdishpur	Reduction of wattage of Street Lamps from 400W to 250W for 75 Nos.	41063
33	EPD-Bangalore	Energy Efficient lighting a) T-5 fittings - 500 Nos. b) 70 W metal halide fittings - 20 Nos. c) 250 W Metal halide fittings - 10 Nos. d) LED Street lights - 25 Nos.	75000
34		VFDs for Kilns - 6 Nos.	200000
TOTAL Annual Savings due to these projects (KWhr/Yr)			**7148128**

Further, some additional activities were also undertaken in the areas of process redesign, conversion and retrofitting of equipments, changes in employees behaviour, etc. which has resulted into overall energy savings of 36.3 TJ of energy saved including 45.2 TJ of indirect energy saved in terms of electricity due to ENCON/EE activities. Due to various energy efficiency and conservation efforts taken up at our units during the last 5 years, on an average 73.2 Tera joules (TJ) of energy use per annum was avoided. It comprises of average 32.8 TJ (equivalent to nearly 9.11 million units of electricity use avoided) per annum indirect energy saved and average 40.4 TJ direct energy saved during last 5 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. It may also be noted that recurring saving due to switching to cleaner fuel done in earlier years has not been taken into energy saving data for 2014-15. Since no major activity pertaining to fuel switch has been undertaken during 2014-15, no major energy savings on account of fuel has been reported in 2014-15 at our units. Further, for the reporting period, the energy saved due to earlier projects has not been taken into consideration.



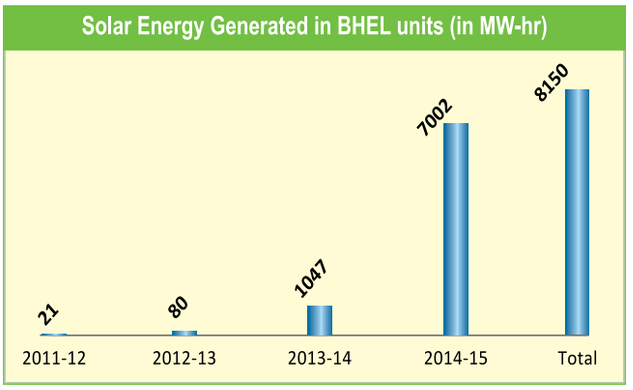
Green Energy Generation

As a part of commitment to sustainable development under the green initiative, a grid interactive 5 MW_P Solar Photo Voltaic (SPV) plant has been installed at our BAP Ranipet unit. Further a 1.5 MW_P Grid Interactive Solar power plant is also under installation at HPEP Hyderabad unit. The 5 MW_P grid interactive solar power plant at our BAP Ranipet unit has generated nearly 6.23 Million Units of green electricity during 2014-15 resulting in mitigation of carbon Footprint to the extent of 5600 MT CO_2-e additionally. As a part of its strategic plan 2017, BHEL is enhancing the use of clean energy at our units / sites through usages of PV based street lights & solar water heating systems, installation of roof-top and grid interactive solar power plants. List of major solar installations in our units as on 31.03.2015 along with installed system particulars are given in the figure.

List of major solar installations details within BHEL premise

Sl No.	Name of the unit / division	Details of installed system
1	HEP Bhopal	250 KW_P SPV Plant
2	R&D Hyderabad	250 KW_P SPV Plant
3	R&D Hyderabad	13.7 KW_P Roof Top Solar Power System
4	R&D Hyderabad	13.5 KW_P Roof top Solar Power System
5	ESD Bengaluru	42 KW_P Roof Top Solar Power Plant
6	Trichy unit	20 KW_P grid connected Rooftop Solar Power Plant
7	Trichy unit	10 Nos. 24 W Solar LED Street Lights
8	Trichy unit	80 Nos. 40 W Solar LED Street Light
9	Trichy unit	2000 Litre Per Day (LPD) Solar Water Heater System
10	Trichy unit	4000 Litre Per Day (LPD) Solar Water Heater System
11	BAP Ranipet	17.5 KW_P Roof top Solar Power Unit
12	BAP Ranipet	5 MW_P Grid Interactive SPV Plant

As per the data available, around 7 million units of green energy has been generated in various units of BHEL during 2014-15 against 1.05 Million units of electricity generated through various solar systems during 2013-14.



It shows that in the last two years, lot of RE based systems have been installed in our premise and have started contributing towards our strategy of maximising use of RE in our operations. Overall in BHEL 303 MU of electricity is purchased in various installations of BHEL and 7 MU of green electricity has been generated indicating that as far as use of electricity is concerned, 2.26% of electricity demand of our units are getting met with green energy generated in-house.

Thrust areas pertaining to generation/ use of Renewable Energy in units
• Installation of Roof Top Solar PV Systems
• Installation of Solar Water Heating Systems
• Installation of Grid interactive SPV Power Plant (sub MW and MW scale)
• Installation of Solar Street light

Some of the activities pertaining to energy efficiency / conservation and renewable energy undertaken during 2014-15 include:

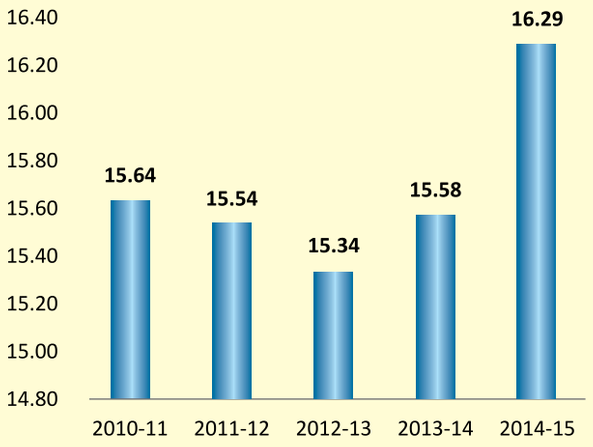
Unit	Activity undertaken during 2014-15
EPD Bengaluru	Usages of Variable Frequency Drive (VFD) for Kiln motors
Trichy	Installation of 2 X 50 kW_P rooftop grid connected solar PV plant and 80 nos. 40W Solar powered LED street lights
HEEP Haridwar	Replacement of 700 M^2 of metallic sheets with Polycarbonate sheets at selected location of block roof for better natural lighting & conservation of energy
HPEP Hyderabad	Installation of 50 nos. Solar Street Lights in factory area and more than 100 LED lamps
PPPU Thirumayam	Installation of 20 Nos. of 36 kW LED Street Light with Solar PV Modules

Utilisation of water and its conservation within our premises

As the World Business Council for Sustainable Development (WBCSD) puts it, water is cheap, scarce and, wasted. Protecting the available water resources is our shared responsibility.

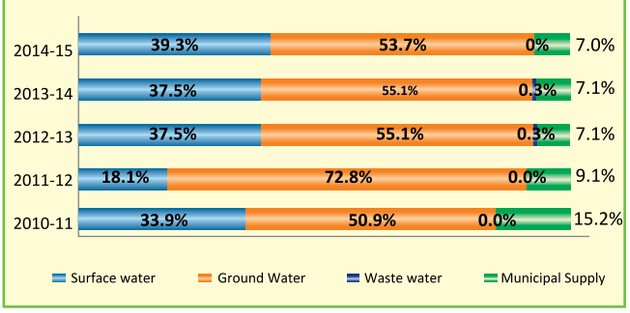
We at BHEL strongly believe that we need to manage the water and wastewater system in our premise in a sustainable manner to meet the requirement and expectations of our stakeholders. That is why water management has been made a part of our strategy and despite our growth in the past, our water consumption has not gone up considerably. Our approach is in sync with our country's National Water policy 2012, which lays emphasis on water reuse / recycle and making our industrial units as Zero Liquid Discharge (ZLD) units. Many of our existing units have already achieved the status of being a ZLD and remaining units are moving towards achieving this feat.

Water consumption at units of BHEL in million cubic metres



As can be seen from the figure, the average water drawal from different resources at our units stands at 15.68 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, rainwater is collected and being used inside the premise.

% Contribution of different water sources in overall water usages at units



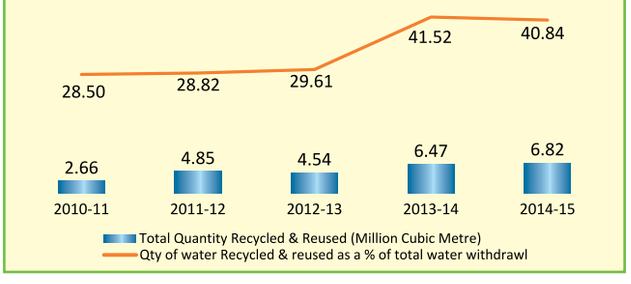
Water Conservation Activities in various units of BHEL

- Development of rain water harvesting potential at all premises
- Treatment of Trade effluents, its recycling / reuse and then drainage to outside
- 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
- At BAP, Ranipet unit only the treated water from STP is being used for horticulture

During the reporting period a total volume of 3.33 Million M^3 of effluent was discharged from various units of BHEL, which is nearly 19.92 % of water drawal 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 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.

Water recycled / reused 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.

Specific activities taken for water management during 2014-15
Bhopal Unit: Creation of rainwater recharge pond near Gadia
IVP, Goindwal: Modification in existing sewage disposal system and installation of 100 KLD capacity sewage treatment plant.
EPD Bengaluru: Recycling of Ceramic Insulator trade effluent and reusing it for pebble washing, filter press cloth washing, Patas washing and gardening

Biodiversity conservation within our premises

None of our units is surrounded by any biodiversity reserve or 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^2 of green coverage and plantation of nearly 3 million trees till date. It has resulted in drop in ambient temperature to the extent of 1-2°C in our premise as compared to area just outside our premises.

To mark the golden jubilee of BHEL, a Golden Jubilee Biodiversity Park has been developed at our BHEL Trichy unit and it was inaugurated on 13.11.2014. It has been given the name “Vanavil”.

However, as far as the significant impact of our operations / activities on biodiversity is concerned, 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.

Specific activities undertaken for afforestation during 2014-15

Trichy Unit: Development of Golden jubilee Biodiversity Park “Vanavil”
Bhopal Unit: Plantation of 8000 trees and development of 800 M^2 green cover.
HPEP Hyderabad: Tree planation by all superannuating employees (1000 Nos)
Power Sector Northern Region: Tree plantation at Bara and Lalitpur project sites

Golden Jubilee Biodiversity Park “Vanavil” developed by BHEL Trichy unit

Managing emissions and Carbon footprint

BHEL units are tracking emissions as per the stipulations in applicable Acts & Rules governing them. Records are being maintained and the same is being reported to statutory authority from time to time as per the requirement of license & consent conditions. However, we are still to develop a robust system to quantify the emissions of all the major pollutants like NO_X, SO_X, $PM_{2.5}$, PM_{10} etc. as required by the GRI G4 framework.

It may be noted that the emission level of NO_X, SO_X, 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.

Introduction of fume extractors in the heat treatment and surface treatment areas for sending out the toxic fumes at HPEP Hyderabad Unit

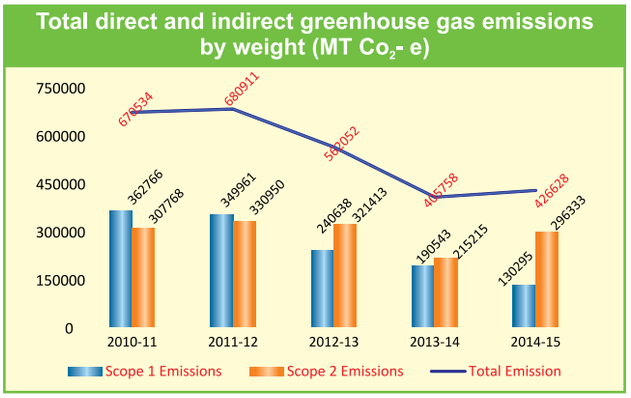
Introduction of mobile fume extractors in welding areas for sending out the welding fumes and metallic dusts at HPEP Hyderabad Unit

Uses of Ozone Depleting substances (ODS) in refrigerators and chillers are being phased out from our units and as a matter of fact it has already been discontinued altogether at most of our units. The quantity of ODS used was 261.5 KG CFC-11 equivalent which is showing a declining trend when compared to its consumption during 2013-14 (282 Kg CFC-11 equivalent) and 2012-13 (307.88 Kg CFC-11 equivalent). The new machines purchased in many of our units are using refrigerants like R-134a, R-410a etc. which are more environment friendly.

Further, quantification of relevant emissions of Green House Gases at all the units of BHEL have been initiated.

For calculation of Scope-1 emissions, appropriate UNFCCC protocol has been followed and emission factor for stationary combustion has been used. For the calculation of scope-2 emission due to usages of purchased electricity in our premise, average grid emission factor for Southern grid has been calculated as 0.97 MT CO_2 - e / MWh and for NEWNE grid the average grid emission factor has been calculated as 0.98 CO_2 - e / MWh using the CEA data (Ref: http://www.cea.nic.in/reports/planning/cdm_co2/user_guide_ver10.pdf) and applying appropriate CDM methodology for calculation. 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.

As can be seen from the figure, the total GHG emissions has gone up slightly in 2014-15 as compared to 2013-14 GHG emission. If we see the data further, the Scope-1 emissions has gone down during the reporting period and Scope-2 emission has gone up resulting in marginal increase in net GHG emission in 2014-15 as compared to 2013-14. Furthermore, if we see the electricity use data, the electricity used in 2014-15 stood at 303 million units which is marginally less as compared to electricity used in 2013-14 which was 310 Million units. But due to revision in grid emission factor, the net Scope-2 emission has gone up marginally.



Reduction in scope -1 emission during 2014-15 can be attributed to three factors – 1. Lesser physical turnover, 2. Enhanced use of cleaner fuels in our operations, and 3. Due to generation of green solar energy inside our premises which has led to reduction in Scope-2 emissions.

available with us, during the last 5 years BHEL has emitted 2.747 Million MT CO_2-e which in turn translates to Average Carbon emission of 0.549 Million MT CO_2-e calculated over the last 5 years. The emission level is showing a consistently declining trend.

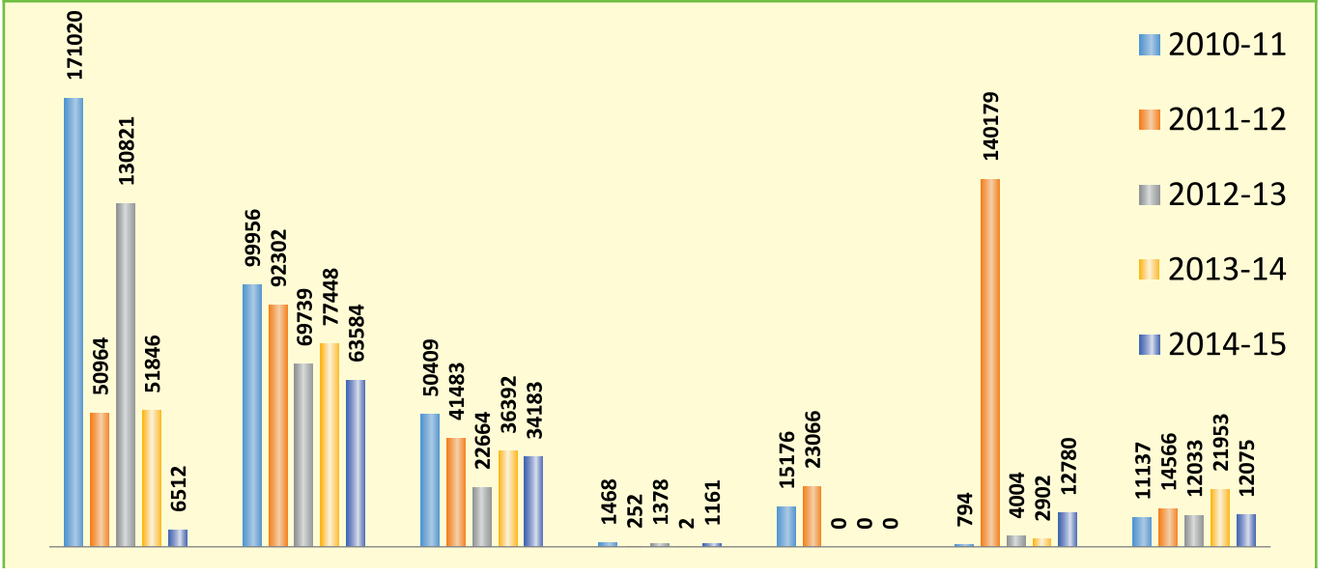
If we see the figures for GHG Emission intensity (Crore ₹ per MT CO_2-e emitted) and Carbon productivity (Carbon Emission per lakh of Gross Turnover) figures, it clearly establishes that our carbon intensity is on the rising trend and carbon productivity is on the declining trend across our units. However, 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

Contribution of major fuels used in units in overall direct emission (MT CO_2- e)

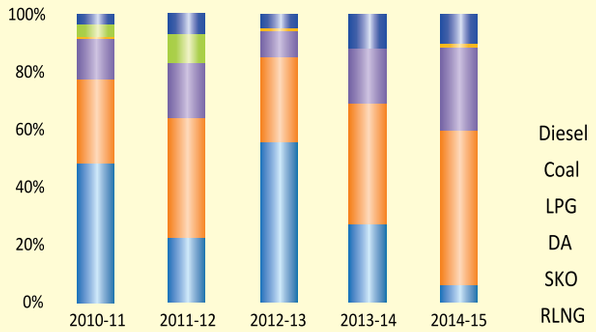
Fuel	2010-11	2011-12	2012-13	2013-14	2014-15
Diesel	171020	50964	130821	51846	6512
Coal	99956	92302	69739	77448	63584
LPG	50409	41483	22664	36392	34183
DA	1468	252	1378	2	1161
SKO	15176	23066	0	0	0
FO	794	140179	4004	2902	12780
RLNG	11137	14566	12033	21953	12075
Total	349961	362813	240638	190543	130295

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. Thus as per the data presented here. The analysis of this trend is not done thus far due to complex interplay of our product line, turnover, outsourcing and other miscellaneous factors which contribute towards carbon intensity / productivity.

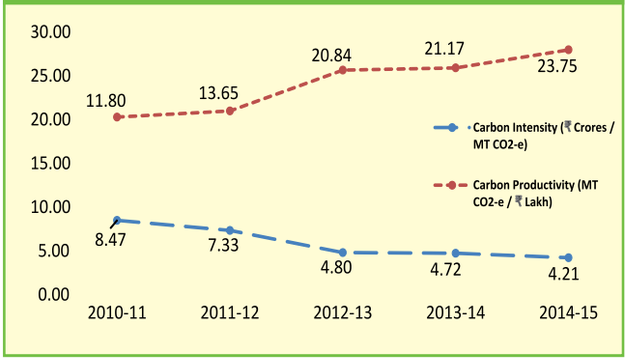
Contribution of Major Fuels used in overall Direct Emissions (MT CO_2-e)



Contribution of different fuel sorces used in Direct Emissions (%)



Carbon Intensity / Productivity data



Further due to various measures taken at our units with an intent to reduce our carbon footprint, a substantial amount of indirect emission (Scope-2) reduction / avoidance has been achieved. A total of 8841 MT of CO_2-e emission was avoided due to various energy efficiency measures taken at our premises during 2014-15. Further due to green energy generation and use in the premise, additional 6795 MT CO_2-e emission was avoided at our premises. Thus a total of 15636 MT CO_2-e of carbon emission was reduced/avoided in our operations during the reporting period.

As a part of MoU 2014-15 commitment, BHEL has avoided a carbon foot-print of 2410 MT CO_2-e due to various energy efficiency measures and generation/use of renewable energy. Additionally a 5 MW_P capacity grid interactive solar power plant at BAP Ranipet has helped in avoidance of carbon Footprint to the extent of 5600 MT CO_2-e during 2014-15.

In addition to generation of renewable energy at our premise, the usages of cleaner fuels is also one of the factors which is helping us in mitigating our carbon footprint.

EPD Bangalore unit have stopped using LPG completely and switched over to natural gas (RLNG) which is safer and is having negligible emission to atmosphere w.e.f. Dec'14. HEEP Haridwar unit has switched over to natural gas from producer gas.
CFFP Haridwar unit has converted Oil-fired burners to Natural Gas fired burners.

Further, as mentioned earlier in the report, we have reduced the consumption of diesel and other conventional fuels which requires transportation through road thereby reducing the Scope-3 emission on account of carriage of these fuels through road transport. However, we have no quantification available with us for this savings.

Handling our operational wastes responsibly

Responsible waste management has always been an important 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.

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/processers through MSTC. Other hazardous wastes are handled, stored and disposed of as per prescribed methodology for such wastes. Municipal wastes goes through systems like Organic wastes converter, waste water recycling, sewage treatment plants etc.

Overall more than 70 projects have been taken across various units of BHEL in 2014-15 related to reduction/recycling/reuse of wastes across BHEL with an objective of reducing use of virgin material and consequently reducing the environmental footprint of BHEL.

Sample of Material & Resource management activities conducted during 2014-15

Unit	Activity
HEP Bhopal	Recycling of cutting fluid [coolant] used in machining.
HPEP Hyderabad	• Recycling of Ferrous and non-ferrous scrap, enhancement of shelf life of paint through additives and fabrication of a 20 MT Gantry Crain using waste material. • Recycling of 368.5 MT of MS Scrap • Nearly 30% reduction in paper usages.
TP Jhansi	Use of oil skimmer for collection of waste oil from drainage water.
PPPU Thirumayam	• Reuse of 200 MT cut bit steel pipes as raw material • Development of Hydraulic and lubrication oil reclamation system.
EPD Bengaluru	Recycling of fired-rejected insulators for making Grog granules which is used in CAP & Disc shell assembly in manufacturing process.
HEEP Haridwar	About 31 MT of used/waste oil has been recovered from coolant recovery system and with the help of oil skimmers fitted on main waste water drain.

3-R initiatives at BHEL Trichy unit

Sl.No.	Title of the project	Objective of the project	Achievement
1	Hydro testing fixture for OTSC header & Reusing Hydro Plugs, Pipe with flat end cover for hydro testing	Reuse of plugs & pipes	Substitution of Hydro dummy welding with Reusable Hydro Plugs
2	Recycling the waste cut bits	Recycle	Utilisation of tube cut bits - 4.3 tons worth Rs 2, 74,693
3	Optimum usage of raw materials	Reduction in material consumption	Raw material procurement length reduced from 600 mm to 260 mm
4	Optimum edge preparation for Supercritical headers	Reduction in machining time & Welding electrode consumption (Power & Consumables)	Reduction in consumption of filler wire / electrode due to optimum edge preparation
5	Reuse of food waste	To use food waste as fodder for piggeries	2000 Kgs of food waste is reused
6	Converting food waste as manure	To reuse food waste as manure	Reuse of food waste and reduction in procurement of manure for horticulture
7	Reuse of vegetable waste/cuts	To reuse of vegetable waste/cuts as fodder for deer	100% vegetable waste/cuts are reused (approx. 300 Kgs/day)
8	Reuse of coconut shells	To reuse of waste coconut shells for manufacturing other products like mosquito coils, agarbathis etc.	11 MT/Year of coconut shells reused
9	Reuse of RO reject waste water	To reuse of reject waste water from RO plant to washing the utensils	Reduction in fresh water consumption by 24 KLD
10	Reclamation of hydraulic and lubrication oils used in machine tool maintenance	To reclaim the contaminated oil and make it reusable after the reclamation process	Processed 22,180 litre of oil and reclaimed 18,835 litre of oil from Mar 2014 to Feb 2015. Savings of Rs.16 lakhs per annum
11	Reuse of failed PCBs in Production Shop (Building 50)	To minimise generation of electronic waste	Saving of Rs. 7,21,610 / -
12	Indigenous Servicing of Variable Voltage Variable Frequency Drives (VVVFD)	To reuse the faulty VVVFD by Indigenous Servicing thereby reducing the generation of unusable VVVFD.	Potential saving of Rs. 3.4 Crores for servicing of over 600 Nos. of VVVFD.
13	Using one VVVFD drive for two motions (AH, MH) of Crane Application.	Reduction in Procurement of new VVVFD	Around 80 Cranes in BHEL Trichy, both Main Hoist and Auxiliary Hoist are running with same Frame motor (30 KW and above) and MH and AH have same frame VVVFD. At any given time operator will use either AH or MH in these cranes.

14	Auto welding process to increase the collar thickness of Cranes LT /CT wheel.	To reduce the Procurement of new wheels by re using the corrected cranes wheel (less collar thickness) after welding.	Till march 2015, 30 wheel have been reused by this systems and are now in good working condition. Cost savings approx. 12 lacs.
15	Cooling Water recirculation/ Reuse	Saving significant quantum of water	Water saving of around 200 KL per day.
16	Reduction of purchase of tubes through Re - Drawl of non-moving items.	Liquidate the excess inventory	894 MTs of CS/AS Tubes valuing Rs. 11.4 Crs
17	Use of non-moving CS Coiled Flats in Various On Going projects	Liquidate the excess inventory and minimise the procurement cost	800 MTs identified for various OTSC projects
18	Use of Non-moving Spiral Finned Tubes in various HRSG Boilers	Liquidate the excess inventory	2214 MTs- identified for CPCL Yelghanka / Hazira HRSG projects
19	Standardisation of Inspection Nozzle in Headers	Elimination of scrap	All header nozzle are procured in a single length of 280mm
20	Standardisation of procurement of Headers and Lines &Links pipes for all projects	Elimination of scrap	Weight reduction in material Forecast by approx. 150 MTs per boilers
21	Re use of High wall Thick of Alloy steel pipe cut bits	5000 MTs of cuts are available in stock - 1500 MTs per annum utilised for various on going projects of critical piping projects.	Minimise the procurement cost of Raw materials valuing Rs.20 Crores per annum
22	Standardisation of procurement of column Base plate for all OTSC projects	Elimination of scrap	Weight reduction in material Forecast by approx. 50 MTs per boilers
23	Reuse of waste SS68 Hydraulic oil.	Reclaim the Leaked Hydraulic SS68 oil collected from trench by Filtering and cleaning.	Dec 2014 to Feb 2015 total 16 barrel oil Recycled and reclaimed
24	Conservation Water in C NDT tube washer system	Re-use the contaminated water after filtering it.	
25	Reduction in Fresh water Consumption in Pickling plant	Pumps and pipe line installation for re using the water discarded from scrubber unit of pickling plant having 5% acid content for dilution of Fresh acid bath 33% conc. To 21%.	Reduction in fresh water consumption : 30 kL per week
26	Thicken end Tube Drawing	Reduction of scrap and improving yield.	

3-R initiatives at BHEL HEEP Haridwar unit			
Sl No.	**Title of the project**	**Objective of the project**	**Achievement**
1	Waste reduction through 5-S implementation in fabrication Bk-2.	Proper upkeep of material & utilization of offcuts for preparing jobs.	Utilization of offcuts through offcuts management & cost saving.
2	Effective utilization of rejected voltmeters in control panels by repairing and reuse.	To Utilize rejected material.	Cost Saving
3	Reducing wastage and inventory by reviewing W/O & dropping them.	To reduce wastage of items.	Cost Saving
4	Improvement in 5-S by developing a discharge system and to stop spillage of Coolant/oil on 2-379.	To Improve 5-S status & to stop wastage of oil.	Improvement in Housekeeping & control on oil spillage.
5	Reuse of already prepared old packing boxes and scraped boxes into current planned packing boxes.	To Utilize scarp material for packing purpose..	Cost Saving
6	Utilization of blanking devices (reuse) which fails during UT.	To Reduce wastage of material.	Cost Saving
7	Reuse of broken boron nitrate insulating disc during spectrometer testing.	Cost saving of spare & pollution reduction	Cost Saving
8	Utilization of incoming material boxes for package no- 78071-10820P16901.	Re utilization of incoming material boxes (scrapped item)	Cost Saving
9	Reuse of technological support (pipe) in stator frame 660 MW individual parts (EE, TE , MP)	Material Saving.	Cost Saving
10	Reuse of technological support (pipe) in stator frame 660 MW individual parts (EE, TE, MP).	Material Saving.	Cost Saving

3-R initiatives at BHEL PPPU Thirumayam unit			
Sl.No	**Title of the project**	**Objective of the project**	**Achievement**
1	Reuse of Treated water from Sewage Treatment Plant (STP)	Avoiding wastage of water. Waste water is treated in STP and used for horticulture activities.	PPPU factory is declared as a zero discharge plant.
2	Usage of Sludge from STP	Sludge from STP is used as manure instead of taking out for proper disposal.	Sludge generated from STP is used as manure instead of disposing outside
3	Reclamation of hydraulic oil.	Re-use of waste oil after reclamation	Reduction in new oil procurement.
4	Re-use of cut-pipes.	To reduce the inventory.	Better utilisation of raw material. Reduction in new pipe procurement.

3-R initiatives at BHEL EPD Bengaluru unit			
Sl.No	**Title of the project**	**Objective**	**Achievement**
1	Recycling of Trade effluent	Reducing the water consumption by recycling and reuse in non critical areas	90% water is being recycled & reused.
2	Usage of dismantled/available doors and windows	To reuse in new construction places and CSR projects	Reduction of wood and steel
3	Reuse of used oil	To reuse oil for lubrication of chain links and conveyors	Reduction in oil procurement and wastage

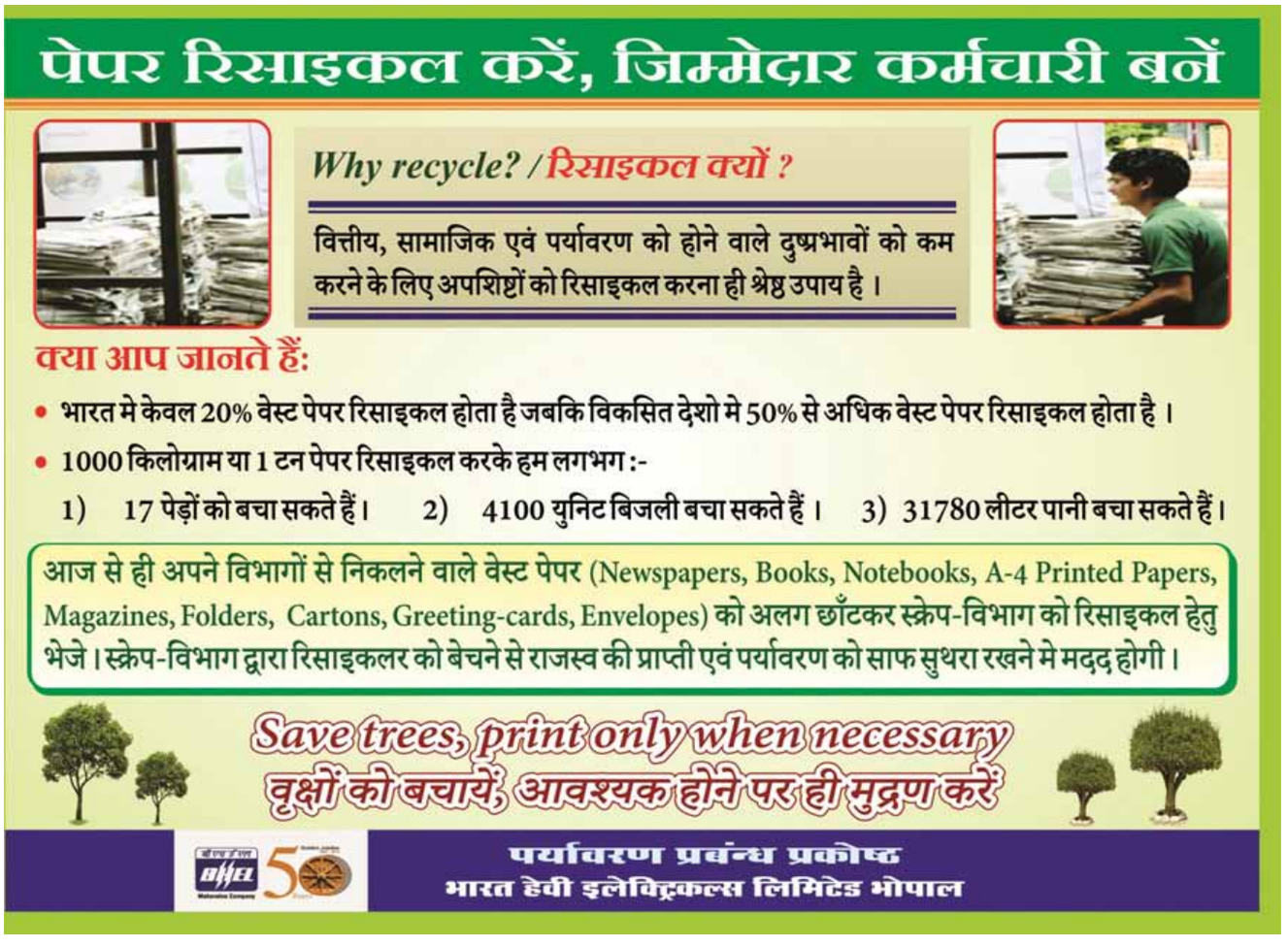
3-R initiatives at BHEL HPEP Hyderabad unit		
Sl.No	**Title of the project**	**Objective of the project**
1	Coolant recovery system	Recycle used coolant
2	Recycling of MS scrap used by various shops in our Foundry	Reuse MS scrap
3	Reuse of used resin (scrap) in Electrical Machines shop	To explore possibility of reuse of used resin by other industries and generate revenue
4	Establishing zero discharge from common workshop	To install RO plant to achieve towards zero discharge

3-R initiatives at BHEL BAP Ranipet unit		
Sl.No	**Title of the project**	**Objective of the project**
1	Waste minimisation of cut-bit/scrap materials	Reuse/Re-cycling thro' various projects
2	Reduction of non-moving / projects under hold or cancelled FG Inventory	To re-use the non-moving finished goods inventory available at Shipping for running projects
3	Waste minimisation of cut-bit/scrap materials	Reuse/Re-cycling thro' various projects
4	Resource utilisation of cut-bit/scrap materials	Every year annual rate contract is finalised by Facility Engineering department (MTD) to take care of the facility requirements of shop floor to the tune of around 100-150 MT
5	Re-visit the scrap norms	To revisit and revise the scrap norms for material accountal.
6	Effective utilisation of raw materials	To make optimum utilisation of raw materials thereby reducing the scrap generation in the material Preparation bay.

3-R initiatives at BHEL HEP Bhopal unit		
Sl.No	**Title of the project**	**Objective of the project**
1	New effluent treatment Plant for galvanizing plant effluent	Proper treatment of effluent as per norm and recycling of effluent for the process
2	Effluent Treatment plant for Paint Booth at Press Shop	Treatment of paint effluent and recycling of treated effluent
3	Effluent Treatment plant for Paint Booth at SWM(Block 4)	Treatment of paint effluent and recycling of treated effluent
4	Installation of new paint booth with effluent treatment plant at traction motors block (TXM)	Extraction of paint fumes and treatment of effluent generated with subsequent recycling of treated effluent
5	Installation of sand recycling plant at Foundry	Collection and recovery of sand for recycling

In addition to these activities, Under Swachh Bharat Abhiyaan, a total of 1.5 million documents were scanned and fed to a documents management system, WRENCH for easy storage and retrieval of documents at our ISG Bangalore facility. It has helped the unit in moving towards becoming a paperless office and thus reducing use of paper which is a precious natural resource.

It clearly shows the seriousness of the organization to tackle the waste generated in our operations in a responsible manner.



Hazardous and Non-Hazardous Wastes generated at units							
Type of wastes	**Unit**	**Quantity (2014-15)**	**Quantity (2013-14)**	**Quantity (2012-13)**	**Quantity (2011-12)**	**quantity (2010-11)**	**Disposal method**
Non -Hazardous	MT	57385.07	100902.67	69661.71	76522.08	83727.22	Through MSTC/ Other authorized agencies.
	CuM	1140	1050	7778.00	9863.19	7710.21	
Hazardous	MT	6185.04	6877.09	8286.93	3426.00	2585.45	
	CuM	398.40	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.

Waste Reused / recycled at units						
Type of wastes	**Unit**	**Quantity (2014-15)**	**Quantity (2013-14)**	**Quantity (2012-13)**	**Quantity (2011-12)**	**Remarks**
Non -Hazardous	MT	9708	6415.28	3761.475	2373	Includes ferrous as well as non-ferrous materials
	M^3	1140	1050	1260	640	Mostly wood waste used for making packing boxes
Hazardous	MT	92	3.62	4.11	4.0	Used oil

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 2014-15 was approx. 30000 MT, which bears the testimony of our commitment towards responsible waste management.

Initiatives taken to reduce environmental footprint of our products and services

With its innovation-led growth strategy, BHEL is committed to offer sustainable, environment friendly and fuel efficient technologies and products to its customers. BHEL is offering equipment with better performance attributes like higher efficiency, lower auxiliary power consumption, better plant heat rate & PLF and lower life cycle cost.

Initiatives taken towards increasing efficiency levels and reducing auxiliary power consumption & emissions:

- Efficiency improvement in power plant equipment is pursued through different approaches, viz. improving operating cycle efficiency, reducing direct energy loss, and optimizing plant layout etc.
- Continuous improvement in cycle efficiency and reduced emissions has been achieved over time by increasing the steam parameters as the technology has evolved

from sub critical to super critical, ultra super critical and Advanced Ultra Super critical parameters.

- Development efforts have been undertaken to achieve breakthrough improvement in cycle efficiency by designing boilers to Advanced Supercritical (AUSC) parameters of 300 bar and 710°C with funding and project support from Govt. of India and with NTPC and IGCAR as consortium partners.

Plant type with power rating	Steam Pressure (kg/cm^2)	Steam Temp. (^0C)	Efficiency (%)	CO_2 Emissions (g/kW-hr)
Sub Critical (500 MW_e)	170	540	35	900
Super Critical	247	565	40	830
Ultra Super Critical	250	600	42	784
Advanced Ultra Super Critical	310	710	46	740

- Continuous reduction of auxiliary power consumption through use of high efficiency axial fans for all FD, PA, & ID applications, adopting a fuel-flexible design philosophy to ensure near-optimal boiler operation with widely varying qualities of coals, employing a dry-bottom ash evacuation system and adoption of optimized layouts.

- BHEL has taken initiatives for producing/ using energy efficient gadgets/ motors/ drives etc. BHEL make HT Motors have now an improved efficiency upto 98%. BHEL is supplying VFD drives for ID Fans, BFP in power projects. Within BHEL, EPD Bangalore uses VFD for kiln motors. BHEL is also pursuing R&D in Energy Efficient system such as Variable Frequency Drives for motors. 1 MW 690 V Variable Frequency Drives have been successfully developed by BHEL for industrial applications. Further, BHEL plans to develop higher rating VFD's for applications in Power Plants.

- Environment friendly air cooled condensers (ACC) have collectively improved operating efficiency and helped in conservation of valuable resources like water. In a typical 2 X 500 MW Thermal Power Plant the total consumption of water is 4000 M^3/Hr. Out of this, the requirement for cooling tower make up water is 3450 M^3/Hr. that is almost 86 % of the total consumptive requirement. By installing air cooled condensers (ACC) in power plant, the requirement of cooling water make-up can be eliminated and as a result water requirement is reduced by almost 70 %. BHEL is executing ACC based supercritical thermal power plant for 3 X 660 MW NTPC-North Karanpura which would result in substantial reduction in consumptive plant water.

- Presently, BHEL has a manufacturing capacity of 26 MW module line and 8 MW Cell line for solar PV. Further, to meet the increasing demand BHEL plans to increase the existing cell line capacity at its manufacturing division at Bangalore from 8 MW to 100 MW by Sep'16.

- BHEL is continuously striving to improve the efficiency of solar cells and at present the average solar cell efficiency is 18.4%. Further, BHEL has been pursuing innovative research for structures, balance of plant, cleaning and tracking of solar cells, etc.

- Significant indirect green initiatives like designing the turbine hall structure in an integrated manner with boiler mill structures, employing E450 structural steels instead of E350 steels, designing the entire boiler structure with bolted joints, etc. have enabled BHEL reduce material consumption and optimize plant footprint.

- BHEL has initiated quantification of relevant gaseous emissions. However, the emission level of NO_x, SO_x, 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. For SO_x emission reduction Flue Gas De-sulphurization (FGD) systems have been installed in the existing and new Thermal Power Projects. For NO_x emission reduction suitable modifications have been done in the wind box firing system of Boilers. For SPM emission control, Electro Static Precipitator (ESP) are installed in Thermal Power Projects.

- BHEL is also carrying out research in developing technologies related to CO_2 capture namely;

Oxy-blown Combustion-systems development and performance demonstration
Membrane Electrode Assembly (MEA) based CO_2 capture systems (Post Combustion Techniques)
Chemical looped combustion technology demonstration
Algal based CO_2 decomposition of industrial flue gases
Oxy-blown IGCC gasification for H_2 production and syngas to liquid fuel conversion.

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 on concrete surface is taken care of according to environment management practices adopted. Further there are no water body and related habitats which is significantly affected by our discharge of water and runoff.

Compliance

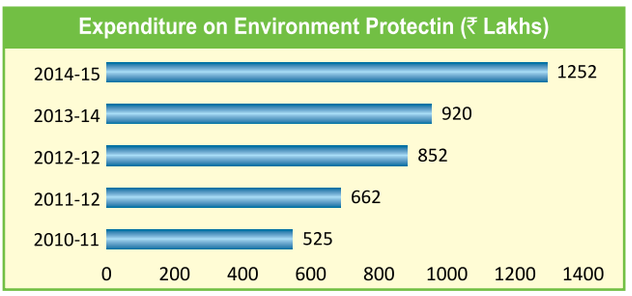
All major Units and divisions of BHEL have well established Environment Management Systems (EMS) certified to ISO-14001: 2004 and Occupational Health and Safety Management Systems (OHSMS) certified to OHSAS 18001: 2007. These management systems provide an excellent framework for proactively identifying 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 during the reporting period.

Environmental Protection Expenditure

BHEL has been taking lot of projects for improvement of environment in and around its units under Sustainable Development and incurring expenditure for the same. 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 during last 5 years 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.



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."

BHEL policies are in line with the principles of Human Rights, The Constitution of India, and various applicable Laws. BHEL has special provisions for ensuring safeguard of women employee at the workplace. No instance of Human Rights abuse has been reported in the Company.

BHEL's HR function is in process of transition from Transactional HR to Transformational HR. Strategy of the Organisation has been aligned in line with the CMD's six-point agenda, HR Functional Plan and HR's Pole Star Statement - "To ensure availability of competent, motivated and effectively contributing Human Resources and to facilitate achievement of full potential of employees at all times to realize organizational mission".

HR Strategy envisages the attainment of following objectives for the benefit of the Organisation:

Developing Employees Capability for New Technology & Areas of Diversification
Changing Employee Profile/Demography - Engagement of Gen Y
Retaining the Knowledge & Expertise of Retiring Employees
Building a Leadership Pipeline & Pool for Key Positions

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 44,905 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.

Demographic profile at BHEL is moving in favour of millennial generation resulting in gradual reduction of average age of employees, which in the company has gone down by 8 years in the last 8 years. In 2006 the average age was 49 years, the current average age is 41 years. In view of this, organisation is channelizing its HR related efforts towards addressing the concern about:

1. Optimizing Manpower Cost
2. Improving Productivity
3. Improving HR Processes & HR delivery of Services
4. Review of Rewards and Recognition schemes
5. Employee Feedback & Communication

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

Attrition has reduced from 0.73% in 2012-13 to 0.69% in 2013-14 and to 0.55% in 2014-15. The current manpower strength stands at 44905.

In BHEL, manpower sanctions are based on the requirement of business and are not vacancy based. It is based on an annual review and alignment to the business requirements. In this regard, Manpower Planning in BHEL is inter-alia dependent on:

Present order book, anticipated order and Company Financials
Manpower wastages
Skill gaps occurring due to technological advances.

Also, Recruitment activities in BHEL have been completely aligned with Government Guidelines as well as Presidential Directives issued from time to time.

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,

The Industrial Relations scenario in the various Manufacturing Units and the Business Sector/ Offices of the Company remained harmonious and peaceful during the year 2014-15. No mandays were lost during the year on account of this.

The thrust on participative culture and communication continued during the year. Three meetings of the apex level bipartite forum, namely "The Joint Committee for BHEL" were held during the year. There were 72 meetings of the Plant Councils and 485 meetings of the Shop Councils. In addition, meetings were also held with the representatives of Executives and Supervisors of the various Manufacturing Units including the Business Sector/Offices. The focus of discussions in the various fora centred on improvement of the overall performance of the Company. The main thrust was on the issues related to increasing the productivity of the employees, cost reduction, quality and sequential delivery in order to meet the customer commitments.

A two day Workshop for Representatives of Supervisors was also organized to apprise the Supervisory Association Members about the challenges being faced by the Company as also the role of the Supervisors to overcome these challenges. The Workshop focused on evolving strategies to meet the challenges and customer commitment. The response from the Members has been overwhelming. The suggestions made during this Workshop by the Syndicate groups was sent to all the Units/ Divisions for sharing at the grass root level as well as for implementation.

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

Dedicated Safety and Occupational Health Centres are being run in the Factory premises taking care of safety and health issues at the work place. Some of the initiatives taken in our units to build and maintain safety and health culture at work place during 2014-15 are given in the figure below.

2 days Annual Safety Heads Meet was conducted at Corporate Office on 16th & 17th Sep, 2014 for sharing of experience amongst the people directly involved in ensuring safety at their respective workplaces.

Occupational Health & Safety (OH&S) initiative taken during 2014-15
Sponsoring BHEL officials for 1 year advanced Diploma course in Industrial Safety conducted by Central / Regional Labour institute at Mumbai, Kanpur, Kolkata, Chennai and Faridabad
Periodic Health and Safety awareness campaigns
Regular health and safety related training programmes
Display of posters and safety instructions
Safety pledge & Tool box meetings
Regular Plant Safety Inspections
Encouraging use of Personal Protective Equipment
Mock Drills in identified hazardous areas at specified frequency
Publication of in-house magazines and hand books on various safety topics
Work Permit system for carrying out critical activities
Conducting periodic safety drills, Internal audits & 3rd party audits
Job Safety Analysis for identified activities
Monthly departmental Safety Committee meetings and plant safety committee meetings
Scheduling preventive maintenance of machine/ equipment
Periodic Maintenance & Testing of material handling equipment (including cranes, hoists, lifting tackles, forklifts, pallets); all pressure vessels/ air receivers, power presses
Making available Material Safety Data Sheet (MSDS) for all the hazardous chemicals and safe work procedures are followed
Developing operation control procedures (OCPs) and providing it to the concerned for effective implementation

Good safety practices followed at various units / project sites	
1	Safety walk: In HPEP Hyderabad unit the Unit head along with senior officers and safety officers go for a safety walk every Monday. During this walk safety practices are observed and safety related issues are discussed and resolved.
2	Third Party Safety Audit: HPEP Hyderabad organised third party safety audit of the unit by NSC. It was a comprehensive safety audit by a very competent cross functional team from NSC. The Unit found the audit to be very useful.

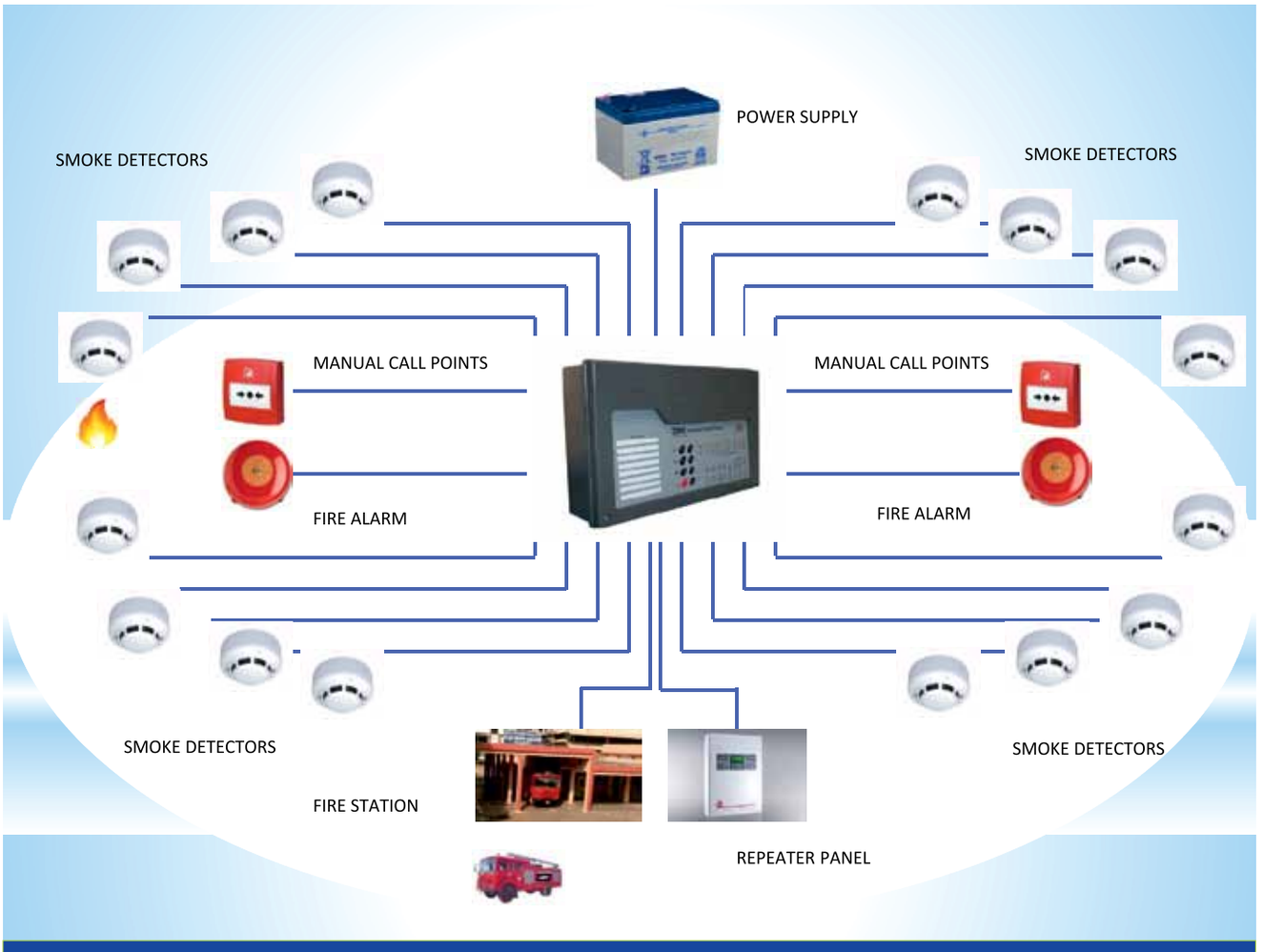
3	Internal audit by Auditors from other Units: HPEP Hyderabad has been organising internal audit by a team head by AGM (HSE)/EDN. This has brought seriousness towards the internal audit and has also improved the quality of the internal audit.
4	Educative film on Safety for Visitors: In HEP, Bhopal a short film has been prepared on safety. This film is shown to all visitors before they are allowed inside the factory. The film is also used in training on safety.
5	Safety Shoes to all employees: In HEP, Bhopal all employees have been issued safety shoes. In BHEL Trichy all employees are issued safety shoes once in a year.
6	Installing CCTV Camera: In HEP, Bhopal 100 CCTV cameras have been installed inside the plant area. This will not only improve safety will also keep a track of unsafe practices.
7	Appointing Electrical safety Officers: In HEP, Bhopal each block is having an Electrical safety Officer.
8	On line System for Incident Reporting: In BHEL Trichy an online system called AROMA has been developed for reporting and recording incidents.
9	Adjustable Tool Rest: BAP, Ranipet has modified the tool grinding machines by fitting them with adjustable tool rest. This will prevent accidents which happen due to increased gap between the tool rest and the grinding wheel.
10	Good arrangement for Drinking water & Sanitation at Site: At PSNR Lalitpur site waterless urinals have been provided. For cool drinking water earthen pots have been provided.
11	Good Practices at IB valley Site of PSER : (a) Full access control to site. (b) Compulsory induction training for all workers. (c) Compulsory health check-up at the time of induction for all workmen. (d) Competency programs for Scaffolding inspection , rescue at height, electrical safety, T&P inspection & operation, (e) Monthly calendar for HSE activities. (f) Training & testing for height phobia. Issue of height pass. Only person having height pass are allowed to work on height. (g) Fixing of Flash back arresters at both ends of gas pipes in DA sets. (h) Method statement & Job Safety Assessment (JSA) for all significant hazardous Jobs. (i) Special lifting beam for handling plates. (j) Standardization of man basket. (k) Colour coding for indicating inspection status of equipments.

National Fire week celebration at HPEP Hyderabad

PEP Talk by Safety officer in progress

New dust extractor system equipped with spark arrestor at HEP Bhopal

Adjustable tool rest fitted in pedestal grinder at BAP Ranipet unit

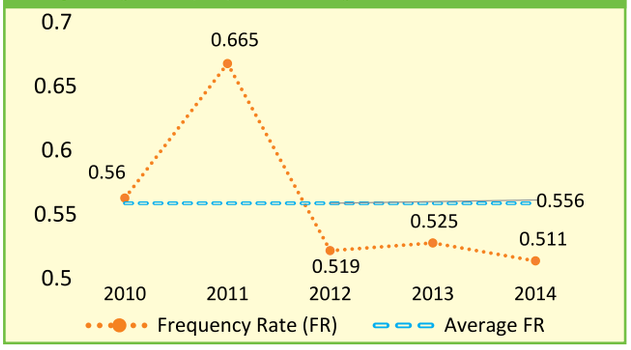


New Fire Detection System In Administrative Building at HEP Bhopal

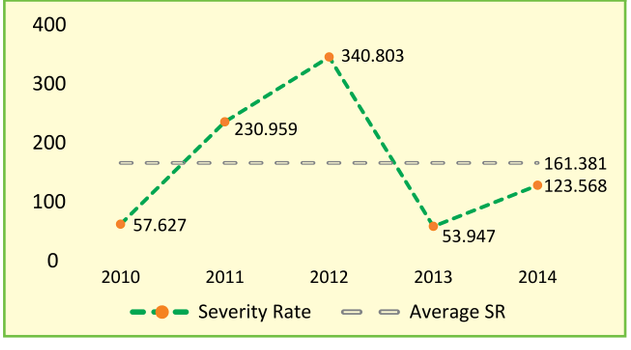
Safety Statistics for BHEL units					
Calendar Year	**Total Reportable accidents**	**Total Man days lost**	**Man Hours worked (in Million Hours)**	**Frequency Rate**	**Severity Rate**
2009	80	32655	138.883	0.576	235.13
2010	82	8433	146.338	0.560	57.627
2011	97	33711	145.961	0.665	230.959
2012	77	50582	148.42	0.519	340.803
2013	88	9029	167.366	0.525	53.947
2014	82	19848	160.624	0.511	123.568

This data is given for the calendar years (1st Jan to 31st December of respective years). 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.

Frequency rate (FR) for last 5 yaers across BHEL units



Severity Rate (SR) for last 5 years across BHEL units



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

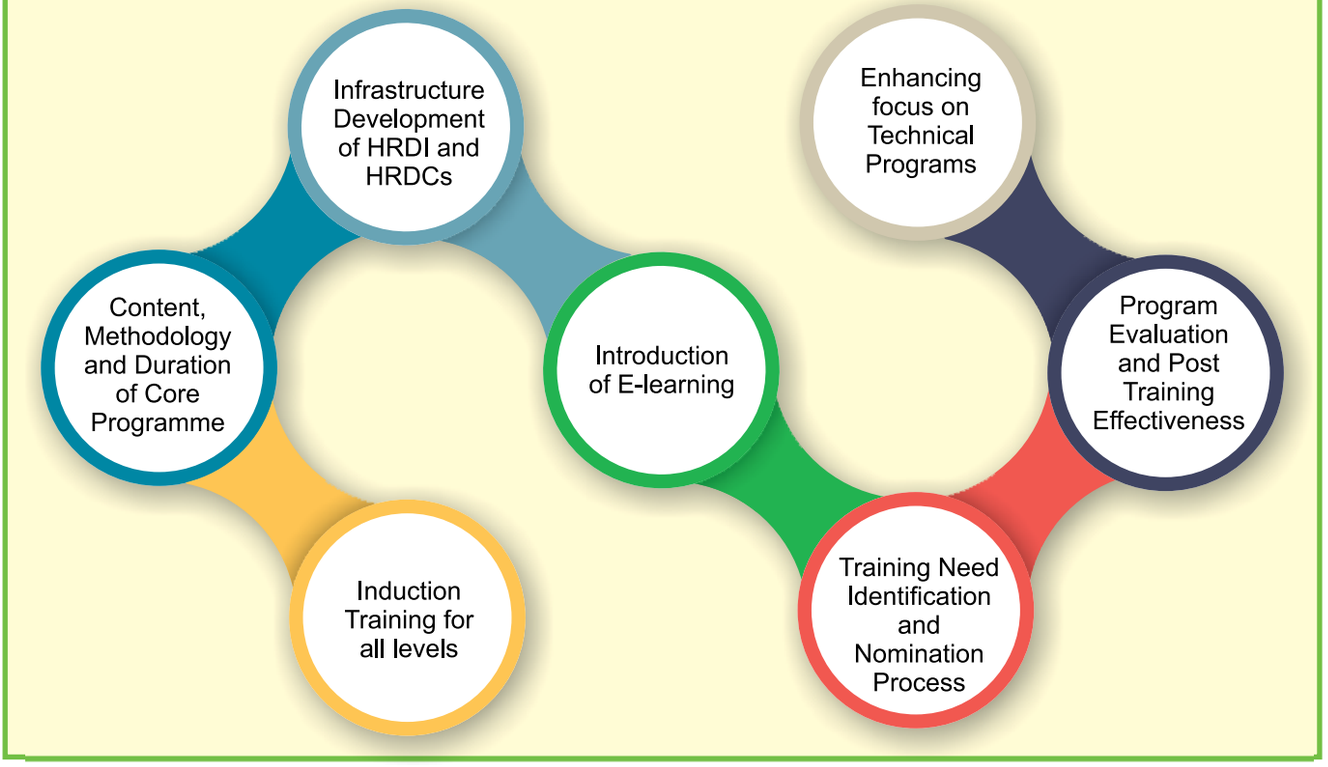
The Human Resource Development Institute (HRDI) situated in NOIDA is the cornerstone of BHEL's learning infrastructure along with Advanced Technical Training Education Centre at Hyderabad and Human Resources Development Centre (HRDCs) at different units. Just as every function in the organization plays its role to contribute its best to the organizational goals, HRDI responds by keeping people in a state of "Readiness" to meet with the Business challenges.

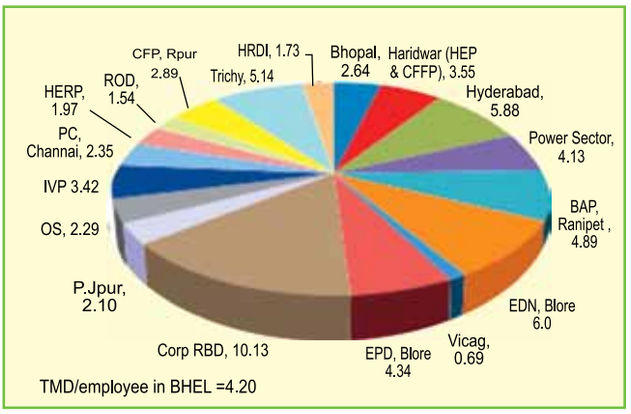
Seven core areas for improvement have been identified based on the stake-holder's expectation study using surveys and focused group discussion tools in 2014-15. Road map for these areas are being developed with continuous support from cross functional teams across organization.

To make full use of current technologies available in the field of learning and development, the organization has made a maiden entry in the field of e-learning by launching two initiatives on leadership and project management. The company has tied up with Harvard Business Publishing for its premier e-learning module on leadership titled Harvard Manage Mentor for its 1000 executives (E3-E5) who are undergoing the course. An in-house module on Project Management has been developed by Trichy in collaboration with Project Management Group for E1 & E2 across the organization. 900 executives have successfully completed the module.

HSE Head's Meet - 2014 at Corporate Office, New Delhi

Training – Core Areas identified for Improvement





An Apex Committee was formed consisting of General Managers to identify technical training needs of the organization in line with the strategic plan, MoU and business needs. Based on the recommendation of the committee new areas in the field of technical training were identified and three programs viz. Solar Energy Technologies, Workshop on Transportation System Technology and Multidisciplinary Simulation for Power plant components were conducted at HRDI, Noida. To lay consistent focus on technical training, a separate technical cell has been formed at major HRDCs and HRDI and continuous efforts have been made to strengthen these cells with the required manpower and adequate resources.

To align the core programs with the business objective of the organization the structure of the programs (content, methodology, duration and eligibility) have been reviewed. Based on the need of the hour some new programs like “Resilient Leadership” and “Winning Together” have also been designed, implemented and successfully included as a part of the core programs.

The training man-days per employees across BHEL for 2014-15 stood at 4.20.

In non-BHEL personnel training category, 29,494 apprentices (trade, diploma, graduate

apprentices) and 10510 vocational trainees were trained in different BHEL manufacturing units. Moreover training on Health Safety & Environment (HSE) aspect is an essential element of our induction training programme. In addition, separate programmes are regularly conducted at all our manufacturing units and project sites to train employees on HSE through internal and external faculty members.

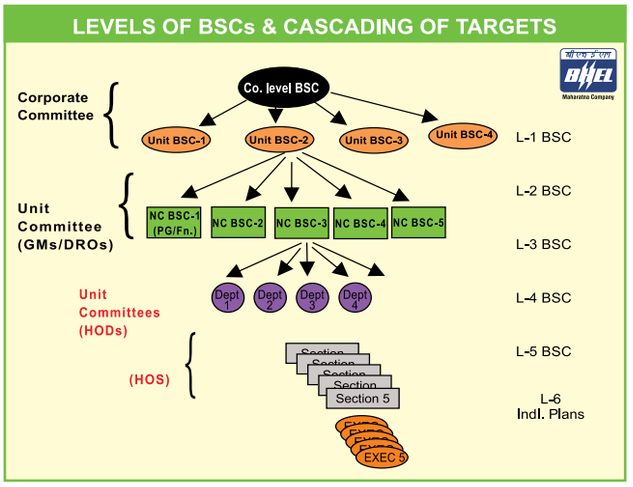
Internal training courses to upgrade skills (technical as well as behavioural) is provided to all category of employees on continual basis. For employees due for superannuation, a training on transitioning to a non-working life is provided through a retirement planning training program. HRDI conducts 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

BHEL has identified People Development as the key area through Technical/ Functional and Behavioural Competency assessment to prepare and align young employees to face Company's Challenges.

To enhance performance, develop potential and to encourage healthy competition, BHEL is taking new initiatives like "Young Executive of the Quarter" and "High Potential Employees Scheme". A strong need was being felt in the organisation for identification & grooming of individuals with high potential in a systematic and time bound manner.

To meet the career development aspirations of Individuals and also to build a pipeline of potential candidates to feed into the Succession Planning process a scheme for High Potential employees was conceptualized and prepared at New Initiative Cell of Corporate Office. A scheme has been designed and is being implemented during 2015-16.



BHEL has a well-established e-enabled Performance Management System, in operation since 2002-03. BHEL is amongst first few PSUs to publish a comprehensive HR manual, pioneering Performance and Open appraisal system. The performance architecture of the company comprises a

series of Balanced Scorecards prepared at various levels in the Company. The Memorandum of Understanding is signed with the Government of India every year, based on which Company's BSC is formulated. Based on the Company BSC, all manufacturing & business units create their respective BSCs. The interdependencies across units are taken care of in the BSCs. The Unit BSCs are cascaded down to lower level BSCs at the Product, Function, Department and Section levels. Individuals working in the sections/ departments create their performance plans for the year on the basis of the parameters and targets of their respective section/ department BSCs thereby ensuring alignment between individual Key Result Areas (KRAs) and Company targets and objectives. The BSCs have helped cascading the Company targets to the lower levels thereby improving the alignment between Company targets and the performance of the constituent units and employees at large. The process of cascading the BSC parameters from Company level to Unit / Business Sector levels has been e-enabled whereby the relevant parameters and targets get cascaded automatically to the concerned BSCs. Once the targets are cascaded from the Top to individual depts. / functions at the beginning of the year, the process of target setting of individuals begin.

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 Score Card 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 the appraisee's boss (appraiser) and then by the next level

MAP

Moving Ahead through Performance

Moving Ahead through Performance

BHEL's e-enabled Performance Management System

(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 unionised 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

BHEL as an organisation recognises the contribution that individuals from diverse backgrounds can bring to its talent pool. This is reflected in our recruitment policy which provides for equal opportunity to individuals irrespective of cast, creed or gender. Our recruitment process has special members in the interviewing committee to ensure diversity in the recruitment and selection of new inductees. In the multi-pronged approach, we continue to focus on ensuring that diverse talent is represented across all tiers of the organisation. Special benefits such as additional leaves/ choice of postings/ Child Care Leave / special trainings are part of our HR Policy structure to provide special support to our women employees to meet their personal and career needs. There has been a rising trend in the representation of women executives in BHEL over the past five years which has risen from 1035 to 1191 (15%).

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.

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 various applicable statues. BHEL has special provisions for ensuring safeguard of women employees at the workplace. The 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

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

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 programmer, 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, procures materials and components on a regular basis from suppliers spread all over

the world. For this purpose, BHEL is backed by a strong supplier-base which is continually updated. New suppliers and traders (only those who are sole/authorized representatives of OEMs) both from within India and abroad, who give BHEL competitive inputs, are being added to the list of existing suppliers.

BHEL has pioneered entrepreneurship development in and around its manufacturing units by providing regular support to Micro and Small Enterprises (MSE) through knowledge sharing, training and development and resource mobilization etc. During 2014-15, BHEL has procured about 17% of its total procurement from MSE in compliance to Public Procurement Policy-2012 for MSEs. BHEL units regularly organize Vendor Meets specifically for MSEs (including local suppliers) towards capacity and capability building, which also provides opportunities for open communication for mutual benefits and support.

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.

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 of India, Ministry of Women and Child Development called “The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Rules, 2013”.

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. A poster has been designed, which includes key provisions of the Act, Duties of the Employer, Complaints Redressal Mechanism, Action for Malicious Complaints & various misconceptions about Sexual Harassment and was circulated to all units for display at conspicuous places. Posters in Hindi, English and Regional languages have been displayed in all units.

130 Workshops / awareness programmes were conducted in units on Gender Sensitization, self-defence and on awareness about the Act. 7132 employees attended these workshops of which 1316 were women and 5816 were men.

In 2014-15, the company received a total of 5 complaints of sexual harassment (including 2 brought forward from previous year) and all have been resolved 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

To promote the inclusive growth and overall wellbeing of the society, BHEL has a structured CSR programme. Corporate Social Responsibility in BHEL is a continuing commitment to behave ethically and contribute to harmonious and sustainable development of society and planet through business, while improving the quality of life of the community and the society.

CSR Vision

A responsible corporate citizen working towards a better tomorrow.

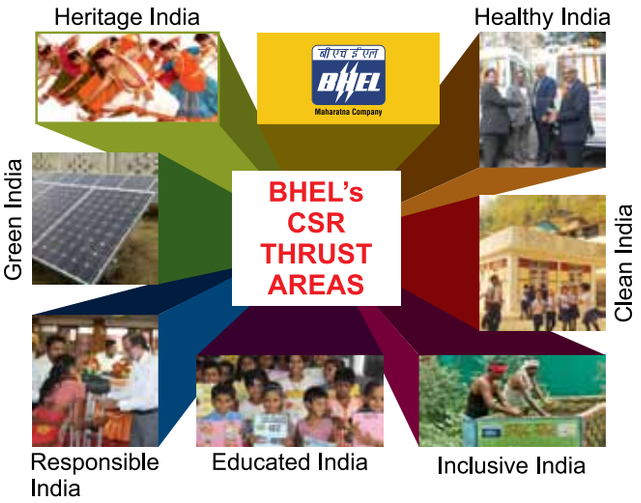
CSR Mission

To sincerely & effectively discharge company's responsibility in the identified CSR thrust areas and other areas listed out in the Companies Act, 2013.

Objectives

The objectives of this policy are:

- To define CSR projects or programs which BHEL plans to undertake and which fall within the purview of the Companies Act 2013, the Companies (CSR Policy) Rules, 2014 and the prevailing DPE Guidelines;
- Modalities of execution of such CSR projects or programs;
- Monitoring process of such CSR projects or programs;
- To make the stakeholders aware about CSR practices in BHEL.
- To work keeping in mind the larger objective of sustainable development in conduct of business and in pursuit of CSR agenda



BHEL, is committed towards holistic welfare of the society by undertaking CSR activities within the ambit of Schedule-VII of the Companies Act, 2013. Thrust areas identified by BHEL for its CSR activities are:

- **Inclusive India:** Mitigation of hunger and poverty through livelihood promotion/ augmenting income generation, Imparting vocational Skills
- **Healthy India:** Promoting health care including preventive health care and sports;
- **Clean India:** Sanitation and making available Safe Drinking Water, Cleaning and preserving the Rivers, Clean surroundings; toilets in schools specially for girls;
- **Educated India:** Promoting education with thrust on informal education to reduce dropouts at primary school level, value education, digital education;
- **Responsible India:** Women Empowerment, Setting up old age homes, day care centre and such other facilities for senior citizens, Rural Development Projects and Slum Development Projects

- **Green India:** Ensuring environmental sustainability with emphasis on projects based on Solar Energy;
- **Heritage India:** Protection of national heritage, art and culture;

Major CSR initiatives undertaken

BHEL undertakes CSR initiatives for implementation through various NGOs/Trusts/ Social Welfare Societies engaged in social activities throughout the country. Details of some of the major CSR initiatives carried out during 2014-15 is listed below.

HEALTHY INDIA

- BHEL joined hands with HelpAge India by providing them with 05 Mobile Medical Units (MMUs) for operation in the vicinity of remote project sites of its 04 Power Sector Regions - PSNR, PSSR, PSER and PSWR and 01 at Guruharsahai, Ferozepur district (Punjab). 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. and operating at Nimoo Bazgoh in Leh (Jammu & Kashmir) Angul (Odisha), Durgapur (West Bengal), Nagpur (Maharashtra) & Guruharsahai in Ferozepur ditrict (Punjab).
- BHEL is continuing with its dream CSR project titled 'Heal a Soul' that involves providing medical assistance to people including children suffering from Hemophilia. The initiative will focus mainly on patients coming from below-the-poverty line (BPL) families located in the vicinity of TBG projects/sites.
- BHEL has conducted two Eye check-up camps at Chowari and Tissa tehsils of Chamba district, Himachal Pradesh along with Doctors from Rotary Eye Hospital, Palampur (Maranda) on 30th and 31st March 2015 respectively. BHEL will be providing complete financial support for a total 100 identified cataract surgeries at Rotary Eye Hospital, Maranda, Palampur.
- Provided financial support for construction of "Ganga Prem Hospice" – a 30 bed cancer hospice (a home providing palliative care to terminally ill cancer patients) near Rishikesh through an NGO named "Shradha Cancer Care Trust".

Poor & needy people of remote areas of Village Tissa & Chowari, Chamba, Himachal Pradesh after Cataract surgeries

- Provided financial support for palliative care to terminally ill patients including cancer patients in Delhi/NCR region and Bhopal coming from poor background and with inadequate means of subsistence through an NGO named “Global Cancer Concern India (GCCI)”.
- Deployed two Mobile Medical Vans for “one year”. The MMVs will operate/ run one each in flood affected areas of J&K and in cyclone affected areas of Vizag, A.P.

Director (HR) , Director (Finance) , Director (E, R&D) and Nominee Director (Joint Secretary - DHI) flagging off Mobile Medical Vans to be run by M/s Wockhardt Foundation in the Hud-Hud affected Visakhapatnam & disaster affected J&K)

CLEAN INDIA

- BHEL contributed Rs. 20.00 Crore to‘Swachh Bharat Kosh’ under the ‘Clean India Initiatives’ of the Govt. of India

CMD and Directors handing over the cheque of ₹ 20 Crore to Secretary, Deptt. Of Expenditure and Secretary (DHI)

- The company has undertaken a prestigious CSR project under the Govt. of India’s Clean India Initiative’ by signing MoU with FICCI for installation of 25 sets of Bio-digester toilet clusters on the banks of river Ganges near Rishikesh & Haridwar.
- The employees pledged to work 2 Hours every week under Swachh Bharat Abhiyaan and this campaign is being run across the whole of BHEL.

EDUCATED INDIA

- BHEL supported a project 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. Appropriate teaching & learning materials, visual aids, puppets, stories, songs, educational games, etc. have been prepared for imparting joyful and child-centric learning environment for the children. Bridge courses and cooperative learning are also included in the curriculum to support quick learning and also improve their functional literacy.

Slum children being imparted education under community development programs (Education for All) Budh Nagar, Inderpuri, New Delhi)

- BHEL is providing financial support for education of more than 20,000 school children in 23 schools located in the premises of the township of its various Units

viz. Haridwar, Jhansi, Bhopal, Ranipet, RC Puram, Hyderabad, Trichy and Jagdishpur.

- Provided financial support for Renovation and Modernization of Library at National College, Trichy (Tamil Nadu).

RESPONSIBLE INDIA

- Undertook a project "Technology-based advanced agricultural interventions" in tribal dominated Khargone district of Madhya Pradesh for upliftment and economic empowerment of marginalized farmers.
- Financial support for installation of R.O. Plants (10 Nos.) for providing Safe Drinking Water to the rural community by de-flouridization in the villages located in the vicinity of BHEL`s Bhandara Unit through the NGO named 'Safe Water Network (India)'
- Carried out infrastructure development activities such as Construction/ Renovation of Community Centres, Construction of Toilets, Construction of Classrooms in Schools, Installation of Solar Lights, etc. in the nearby villages of Haridwar, Bhopal, Trichy and PSER Sites. Each activity has been completed in 5 or more villages totalling 28 activities covering a spread of more than 15 villages.

GREEN INDIA

- Provided financial support for setting up of a 60 KW multiple-grid interactive SPV Power Plant in two rural Akal Academies – schools for children coming from poor & rural background (30 KW each in Akal Academy, Dadehar Sahib and Akal Academy, A Teja Singh Wala of Tarn Taran district, Punjab) through Kalgidhar Trust (a non-profit charitable organisation).
- BHEL has supported "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), which is poverty-stricken and predominantly inhabited by tribal and OBCs with drastically poor irrigation facilities.
- Installing Solar Water Heaters in Guru Granth Sahib Sri Vidya Kender, Chattarpur, Delhi.

HERITAGE INDIA

- Signed MoU with National Culture Fund and Archaeological Survey of India for refurbishment of Swatantrata Sangram Sangrahalya in Red Fort premises of Delhi – a CSR initiative of BHEL under its thrust area titled 'Heritage India'.

Setting up of multiple grid interactive solar power plant of 10 kW_P in rural school in Taran Taran district of Punjab

BHEL's Independent Director & BLC Chairperson interacting with community children and distributing Anti Hemophilic Factor (AHF) to poor & needy children/ persons affected with Hemophilia

Signing of agreement between BHEL, NCF and ASI for the CSR project "Refurbishment of museum Swatantrata Sangram Sanghralaya" located in Red Fort, New Delhi)

DISASTER MANAGEMENT

Efforts made during Hud-Hud Cyclone

BHEL`s HPVP unit at Vizag was a victim of the cyclone. All the production shops and offices were damaged. Due to uprooting of thousands of trees, there was no power and water supply to the factory and township. All the roads were clogged by trees. The teams of volunteers from BHEL armed with power saws and cranes, joined in the rescue/relief operations clearing the roads blocked by the uprooted/felled trees. The team restored normal operation on the road in just 3 days.

On receiving SOS requests from GVMC, APEPDCL, Post Office, SBI a BHEL-HPVP team was quickly pressed into service for their assistance. Alternate Office accommodation was arranged for Post Office. Breakfast and Lunch was arranged for the NDRF teams and police personnel who were deployed in surrounding areas. 150 meals were also arranged for Fire Brigade Personnel.

In association with HelpAge India organized Emergency Health Camps in 09 villages near Visakhapatnam – under Kanthi PHC like Gangwaram, Yarada, Thikkavanipalem, MutyalammaPalem, Dibbapalem (V. Cheepurupalli), ChepalaPalem, Palavalasa, Dana BoinaPalem, Marikavalasa through MMU from 17th to 22nd September 2014. More than 700 patients benefitted from these health camps.

In addition to this, BHEL has started a CSR Project "deployment of Mobile Medical Van" for one year in Hud Hud affected area of Visakhapatnam in association with an NGO Wockhardt Foundation.

A team from BHEL-PSSR had distributed essential items such as Food, Medicines and Water in the flood-affected areas of Visakhapatnam viz. MVP Labor Colony, Shramik Nagar, ChinaWaltair, JallaraPeta, Beach Road after consultation with the local authorities.

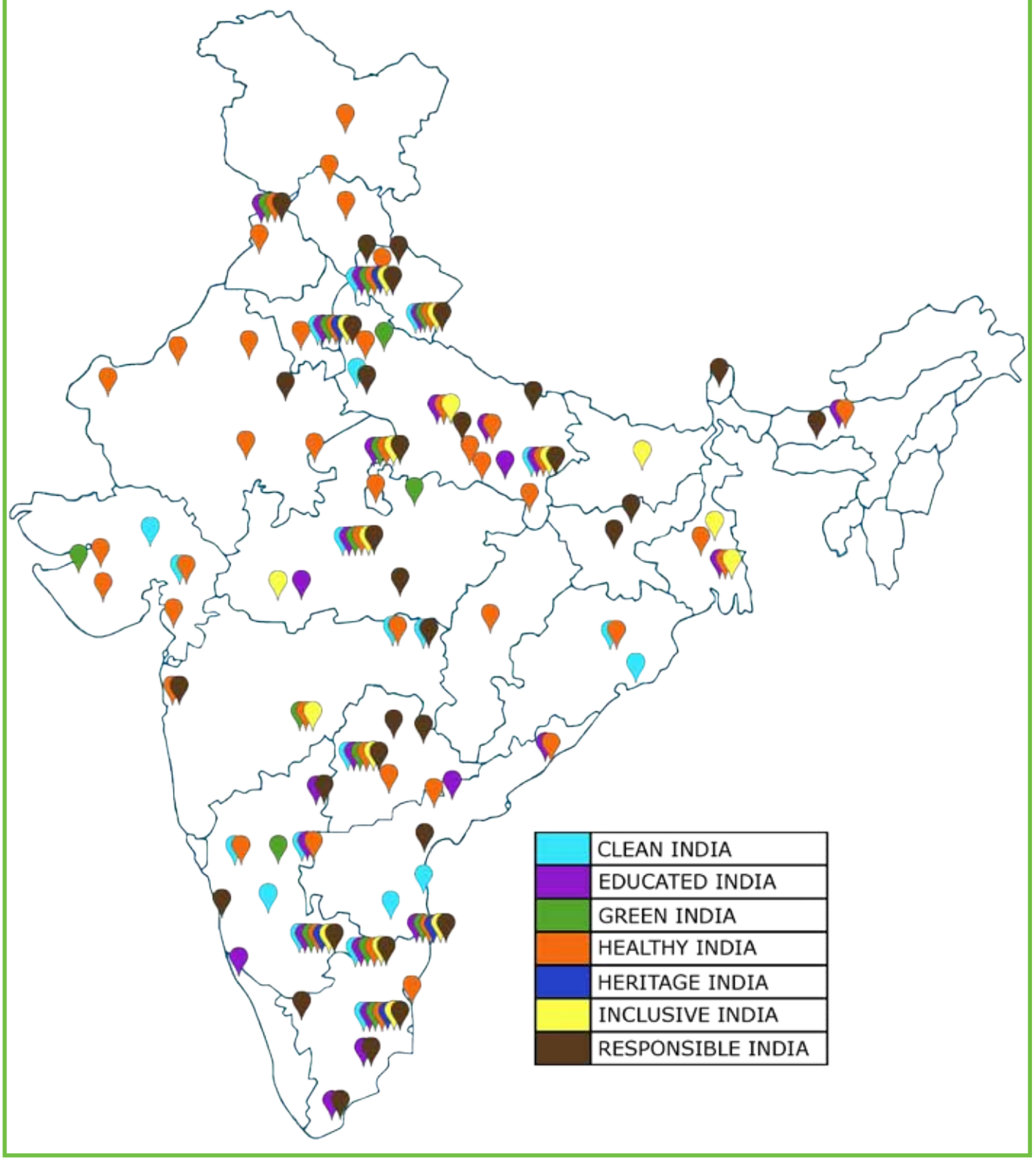
Support during J&K Disaster

BHEL plunged into action to alleviate the sufferings of people severely affected by unprecedented floods in the state of Jammu & Kashmir (J&K). To support the humanitarian cause, the company had rushed two of its HelpAge run Mobile Medicare Units operating in Guruharsahai (Punjab) and Leh (Nimoo Bazgo) to effectively engage in medical relief operations for the flood-ravaged people of the J&K.

One Mobile Medical Van is currently deployed in Jammu & Kashmir's flood-affected areas for one year through the NGO, M/s Wockhardt Foundation for providing medical assistance to the needy people of flood-affected areas.

Check-up of patients in the Mobile Medical Van deployed at outreach areas of disaster affected J&K

Thrust Area wise BHEL CSR Footprint



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 is no case filed by any stakeholder against the company regarding unfair trade practices, irresponsible advertising and/or anti-competitive behaviour during the last five years and pending as on end of financial year i.e., 31-03-2015. Further there were no significant fines and non-monetary sanctions for non-compliance with laws and regulations levied on the company during 2014-15.

Product Responsibility

Continuous product development is the cornerstone of strategy for meeting the challenges in today's environment. BHEL places strong emphasis on innovation and creative development, which are the important drivers of BHEL's R&D programmes for achieving growth. The R&D efforts of the company are not only aimed at improving the performance and efficiency of the existing products, but also developing new products using state-of-the-art technologies and processes.

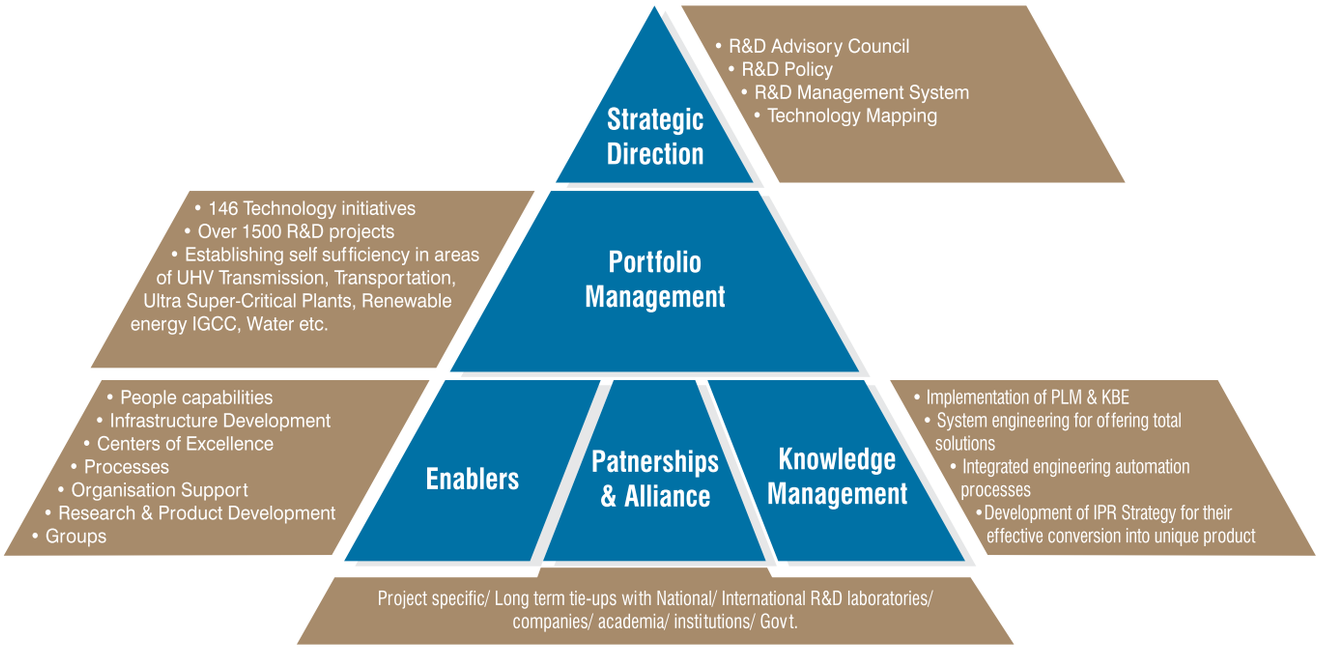
Over the years, BHEL entered into numerous technology collaboration arrangements with leading global manufacturing and engineering companies, such as General Electric Company of the United States, Siemens AG of Germany, Alstom SA of France, Mitsubishi Heavy Industries Ltd. of Japan and ABB Group of Switzerland. The company has successfully indigenised these technologies to meet the requirements of Indian customers and internalising manufacturing at its own facilities.

Today, with eleven ongoing collaborations, BHEL is focusing on successful adaptation and timely absorption of these technologies.

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 focused 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 comprising of reputed Indian scientists, captains of industry and academia. A portfolio of 15 missions leading to 146 technology initiatives further cascaded down to 1500+ projects help the company to build and consolidate capabilities in emerging and existing areas. All these projects are executed and monitored for successful completion within the plan period ending in 2017. For further details about R&D activities in BHEL readers may kindly refer to page no. 106 – 110 of BHEL's Annual report 2014-15.

BHEL has recorded significant achievements during the year. The R&D expenditure of the company for the current financial year is ₹ 1018.59 Crore which is 3.29% of the turnover. This also includes the expenditure incurred on R&D efforts gone into major modifications/ improvements in product/ designs against customer requirements which are not covered in R&D projects. The company filed 453 patent and copyright applications filed during the year 2014-15, enhancing the company's intellectual capital to 3010. A total of ₹7,300 Crore of the company's total turnover has been achieved from its in-house developed products and services.



Collaborative R&D with Academia/ Research Organizations

- Indian Institute of Science, Bengaluru
- CSIR, New Delhi
- Central Institute for Plastics Engineering & Technology, Bhubaneswar
- Indian Institute of Technology Madras, Chennai
- Indian Institute of Technology, Kanpur
- Indian Institute of Technology, Delhi
- Indian Institute of Technology, Kharagpur
- Indian Institute of Technology, Guwahati
- Indian Institute of Technology, Bombay
- Indian Institute of Technology, Hyderabad
- BHEL R&D Gateway at IIT Madras Research park
- Joining and Welding Research Institute, Japan (JWRI)
- DVS – German Welding Society
- Leibniz University , Hanover, Germany

BHEL's Research Institutes:

- Pollution Control & Research Institute (PCRI), Haridwar
- Welding Research Institute (WRI), Trichy
- Ceramic Technological Institute (CTI), Bengaluru
- Centre For Electric Transportation (CET), Bhopal
- Amorphous Silicon solar cell Plant, Gurgaon

Centers of Excellence

- Intelligent Machines and Robotics
- Machine Dynamics
- Compressors & Pumps
- Nano-technology
- UHV Laboratory
- Simulators
- Computational Fluid Dynamics
- Surface Engineering
- Permanent Magnet Machines
- Advanced Transmission Systems
- Power Electronics and IGBT & Controller Technology
- Centre of Excellence for Control and Instrumentation
- Coal Research Centre
- Advanced Fabrication Technology

It is imperative to focus on newer areas to meet the challenges of a changing business scenario while continuing development in traditional areas of business. To meet this objective, BHEL has taken several technology development initiatives covering various business verticals viz. Power, Transportation, Transmission, Solar, Water, Defence and other areas. Company will continue to pursue various projects undertaken in recent years

with focus on low-carbon path technologies including faster assimilation of supercritical technology, development of Advanced Ultra Super Critical Technology, IGCC Technology commercialization, Carbon capture, Solar PV & Thermal, 765/1200 kV Transmission System, GIS up to 765 kV, ±800 kV HVDC system, IGBT based Propulsion Systems for higher rating Locos, EMUs, Metro coaches on mission mode. The company is also engaged in development of emerging technologies like Fuel Cells for distributed environment friendly power generation, development of new materials with addition of Nano-/micro-particles for improving characteristics, and superconducting application in Transformers, Generators, Motors, etc.

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 for Power Sector was completed by M/s IMRB International. CSS index for Power Sector is 71 out of 100 against the last year score of 67 (% improvement is 5.97%). Customer Satisfaction Survey for Industry Sector was completed by M/s TNS India Pvt Ltd. CSS index for Industry Sector is 76 out of 100 against the last year score of 65 (% improvement is 16.9%).

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.

Customer orientation

What father of the nation Mahatma Gandhi said 'He (customer) is the purpose of it (business)' is enshrined in our corporate culture.

Customer focus is part of our Vision, Mission and Values statements.

Detailed Product Labels/ Name Plates/ Test Certificates are provided to customers as per their requirement and terms of the contracts with them.

Given the diversified and large scale operations of BHEL, customer complaints are handled by respective business units / project divisions. The feedback of customer is taken regularly through customer satisfaction surveys, customers' meets and face-to-face interactions. Company is also offering single IT platform 'Customer Interaction Portal' with regard to customer's complaint and feedback on product or project.

There is no case filed by any stakeholder against the company regarding unfair trade practices, irresponsible advertising and/or anti-competitive behaviour during the last five years and pending as on end of financial year i.e., 31-03-2015.

GRI Content Index for 'In Accordance'-Comprehensive

GENERAL STANDARD DISCLOSURES

Indicator	Description	Page No. / explanation	Omissions	External Assurance
STRATEGY AND ANALYSIS				
G4-1	Statement from the most senior decision – maker of the 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	10		
ORGANIZATIONAL PROFILE				
G4-3	Name of the Organization	14		
G4-4	Primary brands, products, and services	21		
G4-5	Location of organisation's Headquarters	26		
G4-6	Number of countries where the organisation operates	26		
G4-7	Nature of ownership and legal form	28		
G4-8	Markets served	26-27		
G4-9	Scale of the organisation	23		
G4-10	Details of workforce broken down by gender, employment contract, employment type, etc.	80		
G4-11	Percentage of total employees covered by collective bargaining agreements	81		
G4-12	Description of the organisation's supply chain	89		
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	32		
G4-15	Externally developed economic, environmental and social charters, principles, or other initiatives to which the organisation subscribe or which it endorses	90		
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	Page 105 of BHEL's Annual Report 2014-15		
IDENTIFIED MATERIAL ASPECTS AND BOUNDARIES				
G4-17	Entities included in the organisation's consolidated financial statements with indication of coverage in the report	40		

G4-18	Process for defining the report content and the Aspect Boundaries	44		
G4-19	Material Aspects identified in the process for defining report content	45		
G4-20	Description of Aspect Boundary within the organisation for each material aspect			
G4-21	Description of Aspect Boundary outside the organisation for each material aspect			
G4-22	Explanation of the effect of any re-statement of information provided in the earlier Report.			
G4-23	Significant changes from previous reporting periods in the Scope and Aspect Boundaries			
STAKEHOLDER ENGAGEMENT				
G4-24	List of stakeholder groups engaged by the organisation	41-42		
G4-25	Basis for identification and selection of stakeholders with whom to engage	40		
G4-26	Organisation's approach to stakeholder engagement			
G4-27	Key topics and concerns that have been raised through stakeholder engagement, and how the organisation has responded to those key topics and concerns	43-44		
REPORT PROFILE				
G4-28	Reporting Period	14		
G4-29	Date of most recent previous Report			
G4-30	Reporting cycle			
G4-31	Contact point for questions regarding the report or its contents			
G4-32	GRI Content Index	100-111		
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	14		
GOVERNANCE				
G4-34	Governance structure of the organisation; committees responsible for decision-making on economic, environmental and social impacts	32		
G4-35	Process for delegating authority for economic, environmental and social topics from the highest governance body to senior executives and other employees			

G4-36	Executive - level positions with responsibility for economic, environmental and social topics	32		
G4-37	Processes for consultation between stakeholders and the highest governance body on economic, environmental and social topics	33		
G4-38	Composition of the highest governance body and its committees			
G4-39	Function of the Chair of the highest governance body within the organisation's management and the reasons for his arrangement as an executive officer	Page 111 of BHEL's Annual Report 2014-15		
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	33-34		
G4-41	Processes for the highest governance body to ensure conflicts of interest are avoided and managed; disclosure of conflicts of interest to stakeholders	33		
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	36-37		
G4-43	Measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental and social topics	36		
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	Page 67 of BHEL's Annual Report 2014-15		
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	36		
G4-46	Highest governance body's role in reviewing the effectiveness of the organisation's risk management processes for economic, environmental and social topics			
G4-47	Frequency of the highest governance body's review of economic, environmental and social impacts, risks, and opportunities			

G4-48	Highest committee or position that formally reviews and approves the organisation's sustainability report and ensures that all material Aspects are covered			
G4-49	Process for communicating critical concerns to the highest governance body	Page 121 of BHEL's Annual Report 2014-15		
G4-50	Nature and total number of critical concerns that were communicated to the highest governance body and the mechanism(s) used to address and resolve them			
G4-51	Remuneration policies for the highest governance body and senior executives; how performance criteria in the remuneration policy relate to the highest governance body's and senior executives' economic, environmental and social objectives	Page 30 of BHEL's Annual Report 2014-15		
G4-52	Process for determining remuneration			
G4-53	How stakeholders' views are sought and taken into account regarding remuneration			
G4-54	Ratio of the annual total compensation for the organisation's highest- paid individual to the median annual total compensation for all employees (excluding the highest – paid individual)			
G4-55	Ratio of percentage increase in annual total compensation for the organisation's highest – paid individual to the median percentage increase in annual total compensation for all employees (excluding the highest – paid individual)			
ETHICS AND INTEGRITY				
G4-56	Organisation's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics	35		
G4-57	Internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organizational integrity	35-37		
G4-58	Internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity			

SPECIFIC STANDARD DISCLOSURES - Material Aspects

Indicator	Description	Page number / explanation	Omissions	External Assurance
CATEGORY: ECONOMIC				
ECONOMIC PERFORMANCE				
G4-EC1	Direct economic value generated and distributed	48		
G4-EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	46-47		
G4-EC3	Coverage of the organization's defined benefit plan obligations	Page 195 of BHEL's Annual Report 2014-15		
G4-EC4	Financial assistance received from government	49		
MARKET PRESENCE				
G4-EC5	Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation	50		
G4-EC6	Proportion of senior management hired from the local community at significant locations of operation			
INDIRECT ECONOMIC IMPACTS				
G4-EC7	Development and impact of infrastructure investments and services supported	51		
G4-EC8	Significant indirect economic impacts, including the extent of impacts			
PROCUREMENT PRACTICES				
G4-EC9	Proportion of spending on local suppliers at significant locations of operation	51		
CATEGORY: ENVIRONMENTAL				
MATERIALS				
G4-EN1	Materials used by weight or volume	54		
G4-EN2	Percentage of materials used that are recycled input materials	55		
ENERGY				
G4-EN3	Energy consumption within the organization	57-58		
G4-EN4	Energy consumption outside of the organization		Not reported	
G4-EN5	Energy intensity	58		
G4-EN6	Reduction of energy consumption	61-63		

G4-EN7	Reductions in energy requirements of products and services	61		
WATER				
G4-EN8	Total water withdrawal by source	63		
G4-EN9	Water sources significantly affected by withdrawal of water	66		
G4-EN10	Percentage and total volume of water recycled and reused	64		
BIODIVERSITY				
G4 – DMA	Aspect specific DMA	65		
G4-EN11	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas		None of BHEL's operational sites are owned, leased, managed in, or are adjacent to, protected areas and areas of high biodiversity value, therefore, these standard disclosures are not applicable.	
G4-EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas			
G4-EN13	Habitats Protected or Restored			
G4-EN14	Total number of IUCN red list species and national conservation list species with habitats in areas affected by operations, by level of extinction risk			
EMISSIONS				
G4-EN15	Direct greenhouse gas (GHG) emissions (scope 1)	69		
G4-EN16	Energy indirect greenhouse gas (GHG) emissions (scope 2)			
G4-EN17	Other indirect greenhouse gas (GHG) emissions (scope 3)	70		
G4-EN18	Greenhouse gas (GHG) emissions intensity			
G4-EN19	Reduction of greenhouse gas (GHG) emissions	69		
G4-EN20	Emissions of ozone-depleting substances (ODS)	68		
G4-EN21	NO_x, SO_x, and other significant air emissions			
EFFLUENTS AND WASTE				
G4-EN22	Total water discharge by quality and destination	64		
G4-EN23	Total weight of waste by type and disposal method	76-77		

G4-EN24	Total number and volume of significant spills	77		
G4-EN25	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel convention, annex i, ii, iii, and viii, and percentage of transported waste shipped internationally		This standard disclosure is not applicable as there was no transport, import, export or treatment of waste deemed hazardous under the terms of Basel Convention Annex I, II, III & IV	
G4-EN26	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization's discharges of water and runoff	65		
PRODUCTS & SERVICES				
G4-EN27	Extent of impact mitigation of environmental impacts of products and services	77-79		
G4-EN28	Percentage of products sold and their packaging materials that are reclaimed by category	78		
COMPLIANCE				
G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.	79		
TRANSPORT				
G4-EN30	Significant environmental impacts of transporting products and other goods and materials for the organization's operations, and transporting members of the workforce	68		
OVERALL				
G4-EN31	Total environmental protection expenditures and investments by type	79		
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	78		
ENVIRONMENTAL GRIEVANCE MECHANISM				
G4-EN34	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms	78		

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	80		
G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	82		
G4-LA3	Return to work and retention rates after parental leave, by gender			
LABOR/MANAGEMENT RELATIONS				
G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements	82		
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	82		
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	84		
G4-LA7	Workers with high incidence or high risk of diseases related to their occupation	85		
G4-LA8	Health and safety topics covered in formal agreements with trade unions	81		
TRAINING AND EDUCATION				
G4-LA9	Average hours of training per year per employee by gender, and by employee category	85		
G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	86		
G4-LA11	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category	87-88		

DIVERSITY AND EQUAL OPPORTUNITY				
G4-LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	89		
EQUAL REMUNERATION FOR WOMEN AND MEN				
G4-LA13	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation		Not applicable	
SUPPLIER ASSESSMENT FOR LABOR PRACTICES				
G4-LA14	Percentage of new suppliers that were screened using labor practices criteria	89		
G4-LA15	Significant actual and potential negative impacts for labor practices in the supply chain and actions taken	90		
LABOR PRACTICES GRIEVANCE MECHANISMS				
G4-LA16	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms	90		
HUMAN RIGHTS				
LABOR PRACTICES GRIEVANCE MECHANISMS				
G4-HR1	Total number and percentage of significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	90		
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			
G4-HR3	Total number of incidents of discrimination and corrective actions taken			
FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING				
G4-HR4	Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and measures taken to support these rights	90		

CHILD LABOUR				
G4-HR5	Operations and suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor	90		
FORCED OR COMPULSORY LABOUR				
G4-HR6	Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor	90		
SECURITY				
G4-HR7	Percentage of security personnel trained in the organization's human rights policies or procedures that are relevant to operations	86		
INDIGINEOUS RIGHTS				
G4-HR8	Total number of incidents of violations involving rights of indigenous peoples and actions taken		Not applicable	
ASSESSMENT				
G4-HR9	Total number and percentage of operations that have been subject to human rights reviews or impact assessments	90		
SUPPLIER HUMAN RIGHTS ASSESSMENT				
G4-HR10	Percentage of new suppliers that were screened using human rights criteria	90		
G4-HR11	Significant actual and potential negative human rights impacts in the supply chain and actions taken			
HUMAN RIGHTS GRIEVANCE MECHANISMS				
G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms	90		
SOCIETY				
LOCAL COMMUNITIES				
G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	90		

G4-SO2	Operations with significant actual and potential negative impacts on local communities	91		
ANTI CORRPUTION				
G4-SO3	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified	37		
G4-SO4	Communication and training on anti-corruption policies and procedures	38		
G4-SO5	Confirmed incidents of corruption and actions taken	39		
PUBLIC POLICY				
G4-SO6	Total value of political contributions by country and recipient/beneficiary		Not applicable	
ANTI COMPETITIVE BEHAVIOUR				
G4-SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes	97		
COMPLIANCE				
G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	97		
SUPPLIER ASSESSMENT FOR IMPACTS ON SOCIETY				
G4-SO9	Percentage of new suppliers that were screened using criteria for impacts on society		Not reported	
G4-SO10	Significant actual and potential negative impacts on society in the supply chain and actions taken		Not reported	
GRIEVANCE MECHANISMS FOR IMPACTS ON SOCIETY				
G4-SO11	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms	Page 103 of BHEL's Annual Report 2014-15		
PRODUCT RESPONSIBILITY				
CUSTOMER HEALTH & SAFETY				
G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement	97		

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	99		
PRODUCT & SERVICE LABELING				
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	99		
G4-PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes			
G4-PR5	Results of surveys measuring customer satisfaction			
MARKETING COMMUNICATIONS				
G4-PR6	Sale of banned or disputed products		Not applicable	
G4-PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship, by type of outcomes	99		
CUSTOMER PRIVACY				
G4-PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data	99		
COMPLIANCE				
G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	99		

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.

Glimpses of CSR Activities

CSR Meet – 2015 held at Corporate Office, New Delhi

Vehicle for Blood bank for Blood Bank & Thalassemia Day Care Centre at Thane

Refurbishment works carried out at Tadong Senior Secondary School, Sikkim

Installation of sanitary napkin making unit for women of village Mamai, Munger, Bihar

Supported an NGO- 'DISHA' to promote education and skill development of disadvantaged children and youth living in ten slum clusters of Delhi

Lifeline Express, 'World's first hospital on wheels', stationed at Jhansi to provide free medical treatment to the most needy and poor people of Bundelkhand region

Scholarship to 100 Girl Students (11th Std. to Degree Level) from lower economic strata at Haridwar,Uttarakhand

Maharatna Company

Bharat Heavy Electricals Limited

Registered Office : BHEL House, Siri Fort, New Delhi - 110049, India.

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Corporate Identity Number: L74899DL1964GOI004281

SHARAD