



Making in India

*...Five Decades of
Excellence*



Chairman's Address

51st Annual General Meeting

22nd September, 2015



“...From managing growth to managing slowdown,
your company has steadily
strengthened its inherent
competitiveness as reflected from
sustained market leadership,
continued focus on innovation and project
execution performance...”

Ladies and Gentlemen,

Good morning and thank you for joining us today.

On behalf of the Board of Directors, I take this opportunity of extending a very cordial welcome to you all in the 51st Annual General Meeting of your company. The Annual Report for the year ended 31st March 2015 has been with you and with your permission, I shall take it as read.

It's India now

The constituents of **global economy** are more deeply interconnected today than ever before. World's major economies have been experiencing divergent growth paths. Tides are now clearly shifting. In the emerging world situation **Indian economy is all set to accelerate**.

In the State emblem adopted by the Govt. of India on 26th January, 1950, three lions are visible, the fourth lion being hidden. Last year, the Prime Minister's clarion call of 'Make in India' has (as though) set this fourth lion on the move. This flagship program of the Government has generated lot of excitement across the world and has enormous potential and promise to catapult the Indian Industry into a new phase of growth trajectory. The world economic outlook by IMF puts India's growth rate at 7.5% for 2015-16 & 2016-17, the highest amongst all the countries. The emerging growth scenario has therefore created a need for maximizing the 'Value addition' in 'Manufacturing' based on 'Technology depth'. Your Company's vision of a '*Global engineering enterprise providing solutions for a better tomorrow*' is in full convergence with the Government's multiple initiatives.

Today, when India is at the threshold of a new paradigm driven by thrust on developing & augmenting manufacturing capabilities, it is an opportune time for the company to dwell on its sustainable contribution to nation building and actualise its vision with new enablers put rightly in place. Technology development and Indigenization of critical technologies, veritable enablers, have been our focus as is evident from the developments of recent years:

- **Power**

Demonstrating its commitment to '**Make in India**' mission, BHEL commissioned country's first indigenously manufactured, highest rating 800 MW Supercritical boiler at APPDCL Krishnapatnam-2 & country's first 660 MW indigenously manufactured supercritical set at NTPC Barh-5. These are very important milestones for the country



2 units of 800 MW Supercritical boilers commissioned at SDSTPP, Krishnapatnam

seeking to achieve self-reliance in the field of state-of-the-art supercritical technology.

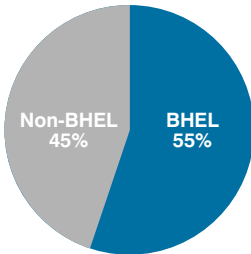
- Leveraging on its vast experience of over five decades of working with coals having varying characteristics and taking into account the current uncertainty of coal supply, BHEL has in-house developed 'Fuel Flexible Boiler', which is capable of firing coal with range from 100% Indian to 100% imported. BHEL will supply the first Fuel Flexible Boiler for 800 MW supercritical thermal power project of TSGENCO at Kothagudem.



Indigenously manufactured supercritical set of 660 MW rating commissioned by BHEL at Barh 5

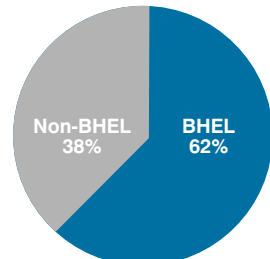
- That your company has been a forebearer of self-sufficiency in indigenous manufacturing of heavy electrical equipment in the country is manifested by the fact that BHEL constitutes a mammoth 20,000 MW per annum manufacturing capacity for power plant equipment in the country. Continuing its golden legacy of nation building while facing stiff domestic & international competition, today your company commands 55% share in the country's total installed capacity (Coal, Gas, Diesel, Hydro and Nuclear Sets) and 62% share of the total generation from Thermal Utility Sets (Coal based).

Installed Capacity - Utility*
2,41,427 MW (31.03.15)



* Coal, Gas & CCP, Diesel, Nuclear & Hydro

Generation - Utility**
836 BU (2014-15)



** Coal & Lignite

Note: Excludes Renewables and Up-rating / De-rating

• Transmission

Your company's focus on developing more efficient UHV transmission systems is bolstered by its development of 765 kV range of



765 kV Shunt Reactor designed, manufactured, tested and commissioned by BHEL

transformers and shunt reactors. With successful design, manufacture and supply of 765 kV shunt reactor to PGCIL Wardha, BHEL has established itself to address all kinds of requirements of power generating and transmission utilities for 765 kV voltage class. In the year 2012, BHEL became the first indigenous manufacturer to design, manufacture and commission India's first 1200 kV Transformer at Ultra High Voltage Test station, Bina.

BHEL successfully developed, manufactured and commissioned India's first 'Phase Shifting Transformer' (PST) at TSGENCO Kothagudem Thermal Power Station in Telangana. PST improves transmission efficiency, and hence it is an outstanding Smart Grid solution considering the benefits it would contribute to transmission networks.



India's first Phase Shifting Transformer developed & manufactured by BHEL, installed at Kothagudem

- **Transportation**

BHEL supplied Insulated Gate Bipolar Transistor (IGBT) propulsion equipment today account for over 40% of IGBT based locomotives in operation by the Indian Railways. BHEL is poised to make electric locomotives up to 6000 HP rating with IGBT based propulsion systems and microprocessor-based VVVF (Variable Voltage Variable Frequency) controls.

Indian Railways are finalising tenders for two new locomotive factories



First Rake of AC EMU manufactured at Jhansi Plant

which will be producing high power, high speed Electric and Diesel Locomotives. BHEL is partnering with leading players for both the opportunities.

- **Defence**

Over the years, your company has made significant contributions in Defence sector for Naval guns and IPMS (Integrated Platform Management System). Currently 'Make in India' initiatives in Defence



Super Rapid Gun Mount (SRGM) mounted atop naval ship

Sector are opening up large opportunities in Naval and Field Guns, and Submarines, etc. BHEL is actively pursuing these opportunities by partnering with Global OEMs.

- **Renewables**

Your Company has been in the field of Solar Photo Voltaic (SPV) for nearly three decades now. The Company has developed capabilities to supply complete SPV systems on EPC basis for both off-grid and grid-interactive requirements. Company has also geared itself to take up EPC of large size Solar projects (i.e. greater than 50 MW) to address the emerging market trends and the increased potential in this segment.



15 MW SPV Plant for NTPC Singrauli commissioned by BHEL

- **Water Business**

Your Company now offers turnkey solutions from concept to commissioning for various feed water characteristics ranging from pre-treatment to tertiary treatment, including pre-treatment-sedimentation, filtration, RO based sea water desalination plant, UF-RO-EDI based DM Plant, Effluent treatment plant, Membrane based sewage treatment plants (STP), Zero Liquid discharge (ZLD) for industries, and complete plant water system for Power Plants.

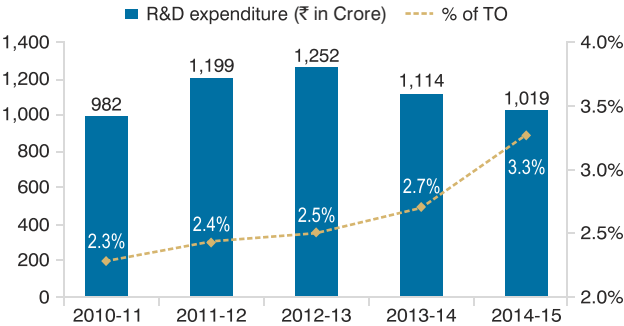
Besides executing a number of water treatment plants integral to various power stations, Company also made foray in Industrial



1000 cum/hr. treated water facility phase-1 commissioned at OPAL Raw Water Treatment Plant

segment and bagged order for 96 MLD membrane based Raw water filtration plant for Petrochemical Industry at Dahej.

I must say that all these achievements have fructified because of the company's relentless and passionate focus on innovation. BHEL, starting with technology support from Global OEMs, has developed into an entity with cognisable indigenous capabilities. In times of both growth and slowdown, BHEL's spend on R&D has been consistently more than 2.5% of its turnover for last 5-7 years. This is the highest R&D spend by an Indian company in the engineering and manufacturing segment. We have been filing more than one patent / copyright a day. I am sure, that our multifarious future endeavours will lead to larger value addition for the nation at large.



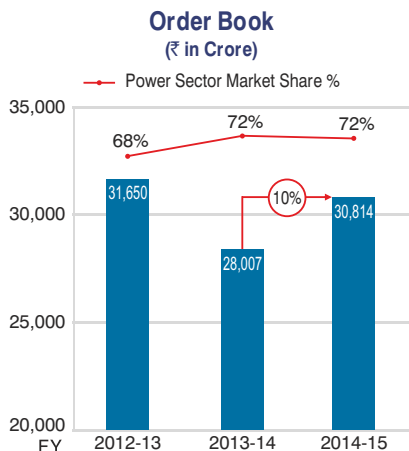
As in the previous years, I would like to now present the major highlights of your Company's performance.

Performance during the year

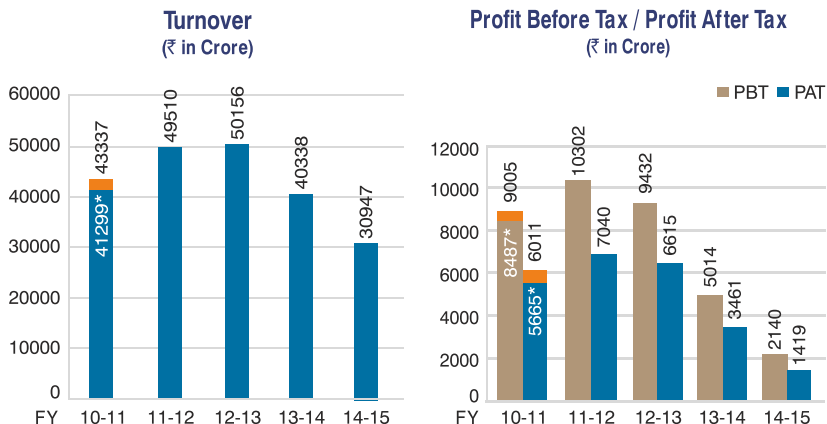
Financial year 2014-15 saw the highest Power capacity addition in the country, however, the Generation sector is still to come out from the stressful conditions which adversely affected the Power Sector development for past 3-4 years. Major constraints like non-availability of long-term coal linkages to the identified projects, inability to ramp up the indigenous Coal and Gas production, rising prices of the imported fuel, poor financial health of State Distribution companies, land acquisition and issues related to environment clearances, etc. had been hampering the Sector. In the last one year, certain proactive steps by Govt. of India such as allocation of coal blocks through e-auction, rationalization of fuel prices and expeditious clearance of projects have provided much needed relief, however, the retarding force which was created by market shrinkage of last 3-4 years continued to impact our operations for the second consecutive year. Your company faced the challenges with exceptional resilience to these headwinds. From managing growth to managing slowdown, your company has demonstrated its strong inherent competitiveness as reflected from sustained market leadership, continued focus on innovation and excellent project execution performance.

BHEL secured orders worth ₹ 30,814 Crore during 2014-15 – an increase of 10% over previous year despite intensely competitive domestic and overseas markets. In a shrinking market in Power Sector, BHEL maintained its leadership position with market share of 72% for the second consecutive year. By expanding its offerings, the company secured 89% of its total orders in Power Sector on EPC (Engineering, Procurement & Construction) basis. The company ended the year with an outstanding order book of ₹ 1,01,018 Crore.

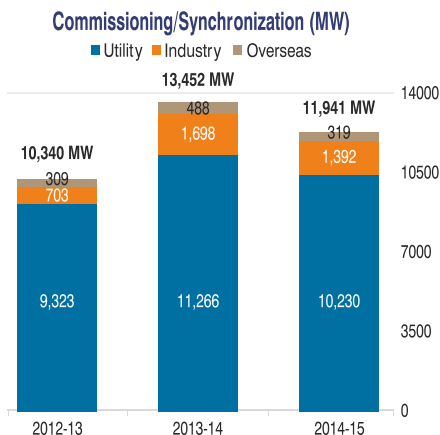
BHEL has achieved a Turnover of ₹ 30,947 Crore and a Net profit of



₹ 1,419 Crore during 2014-15. For the third time in a row, your company synchronized/ commissioned power projects of more than 10,000 MW in a single year.



Power projects totalling 11,941 MW were commissioned/ synchronized during the year, inclusive of 10,230 MW Utility sets, 1,392 MW Captive sets/ Industrial sets in the country and 319 MW in overseas markets. 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.



Today, BHEL equipment boast of world-class performance attributes like, lower auxiliary power consumption, superior boiler efficiency, better plant



Budge Budge TPS equipped with BHEL sets recorded PLF of over 90%

heat rate & Plant Load Factor (PLF) and finally lower life-cycle cost. Various performance reports from Central Electricity Authority, India and North American Electric Reliability Corporation (NERC), USA explicitly indicate superior performance of BHEL thermal sets, which ultimately leads to most optimal utilization of fossil fuel coal in such power plants. During the year, overall PLF of BHEL supplied coal based sets at 65.20% was higher than the national average by 70 bps. This includes 27 sets which registered PLF of over 90% and 76 sets achieved PLF between 80% - 90%. 181 BHEL coal based sets achieved Operating Availability (OA) higher than 90%. BHEL supplied Nuclear sets registered an OA of 92.3% and PLF of 83.7% in 2014-15.

Positioning for Future

Company still faces many challenges but recent policy initiatives taken by the Government are likely to improve business environment and provide momentum to existing and upcoming projects. Your company is focusing to leverage on the intrinsic capabilities to build strong foundations for the coming years:

- Your Company's resolve to focus on clean coal technologies and chart a 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 CO₂ 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, your company 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 MWp grid interactive solar power plant at its Boiler Auxiliaries Plant, Ranipet which is powering operations & ensuring CO₂ mitigation of around 5600 MT CO₂-e per year. Another 1.5 MW PV plant is being commissioned at its Heavy Power Equipment Plant, Hyderabad.



BAP Ranipet unit is the first unit of BHEL to install a 5 MWp grid interactive solar power plant

- Faster execution and on-time delivery are indispensable to sustain market leadership. Your company has already augmented its capacity for Power plant equipment manufacturing to 20,000 MW p.a. BHEL signed an MoU with the newly formed Telangana State for 6,000 MW Power projects and received two major EPC orders from TSGENCO for 1x800 MW Kothagudem TPS & 4x270 MW Bhadradi TPS. This has been followed by a landmark single largest EPC order worth around ₹18,000 Crore received recently for setting up 5x800 MW Supercritical Thermal power project at Yadadri, in Nalgonda district of Telangana.



CMD, TSGENCO & CMD, BHEL, in the presence of Hon'ble Chief Minister, Telangana at the MoU Signing Ceremony for setting up 6,000 MW of Thermal Power Plants in Telangana

The company is all set to create new benchmarks in execution. We are also favourably placed in a number of other new tenders.

- 'Make in India' initiative seeks to make India a competitive manufacturing hub. For your company, the opportunity lies in the



BHEL wins India's first ever EPC contract for 800 MW Supercritical Power Project at Wanakbori from GSECL

higher value-added manufacturing. In line with this, your company, particularly in power sector, is focusing on increasing our value contribution in a shrinking market. In sync with its strategy of capturing EPC business and enlarging scope of offer, BHEL received 89% of the Power sector orders on EPC basis as compared to 52% in 2013-14. This includes order for country's first ever EPC contract for 800 MW rating Supercritical Power Project secured from GSECL for 1x800 MW at Wanakbori. In addition to this, BHEL is expanding its portfolio of equipment & systems by adding Flue-Gas Desulphurisation (FGD), Water Management system, Air Cooled Condenser, and other Balance of Plant (BoP) systems. Increasing level of indigenisation in Supercritical Technology and development of Adv. Ultra Supercritical (AUSC) Technology are focus areas in Power sector.

- Over the time, your company has taken various initiatives to expand its presence in Industry segment and build a robust portfolio of businesses by leveraging the Company's strengths, investments in existing facilities and by exploring new business models with focus on collaboration with value chain partners. The company set a new record in its Solar Photovoltaic (PV) business in a single year by supplying 50 MWp of SPV modules including solar power plants commissioned for NTPC Talcher and NTPC Unchahar for 10 MW each. Your company also received the largest value single order for 64 sets of IGBT based Traction Converters from Chittaranjan Locomotive Works of Indian Railways. BHEL is well positioned to capitalize on the premium 765 kV voltage segment. BHEL is also executing world's largest ± 800 kV, 6000 MW Multi-terminal HVDC NE-Agra project. 76/62 Super Rapid Gun Mount (SRGM) along with Auxiliary Control System (ACS) were successfully commissioned on-board the indigenously-built naval warship INS Kolkata D-63. To capitalize on the opportunities in Defence sector, your Company has formed a consortium with Mishra Dhatu Nigam Ltd. (MIDHANI) and Hindustan Shipyard Ltd. (HSL) for jointly bidding for indigenously building P-75 (I) submarines for the Indian Navy.
- Your company is also exploring collaboration opportunities in target countries to grow exports business by forging opportunity-specific and

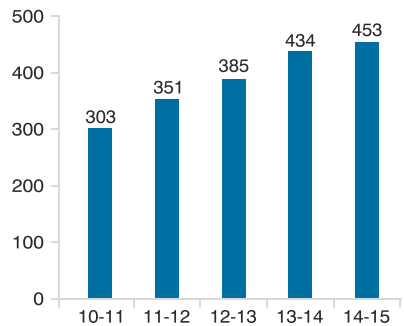


Future Cooperation Agreement signing in Astana, Kazakhstan

market-specific alliances to strengthen BHEL's role as an EPC player in the International market.

- R&D expenditure of the company has been more than 2.5% of the turnover for more than 5 years now. Your company invested ₹ 1,019 Crore on R&D, and recorded a turnover of ₹ 7,300 Crore from in-house developed products and services. BHEL also filed the highest-ever 453 patents and copyrights in a year, enhancing the company's intellectual capital to 3,010.

Filing of Patents & Copy Rights (Nos.)



- Focus on cost optimization through increased indigenisation of super critical technologies, higher value additions, increased vendor base and design/layout optimization efforts aided the company in enhancing competitiveness. Company's focus on cash realization during the year has resulted in retaining cash surplus position and arresting rising trend of debtors.
- The most valuable asset of the company is its dedicated workforce of

about 45,000 employees. With the demographic profile at BHEL moving in favour of millennial generation, People Development strategy of BHEL is focusing on developing each person's competencies in alignment with business plans through implementation of initiatives like performance linked pay, career planning, succession planning and e-learning modules for developing leadership competencies in association with Harvard Manage Mentor, an affiliate of Harvard Business School.

All these initiatives will enhance your Company's capacity to contribute to national priorities and create value for its stakeholders.

Governance & Inclusive Development

Your 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.

We are also addressing the issue of social development and inclusive growth through our focus on capacity building, empowerment of communities, development of backward regions, and upliftment of the



₹ 20 Crore contributed by BHEL to 'Swachh Bharat Kosh' under
'Clean India Initiative' of the Govt. of India

marginalised & underprivileged sections of the society to contribute to the National vision of inclusive growth.



Medical aid provided to patients in the Medical Mobile Van deployed by BHEL in the disaster-affected areas of J&K



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

Awards & Accolades

Your company was awarded 'EEPC's Top Export Award' for the twenty fifth year in succession and 'World Intellectual Property Organisation Award' for 'Innovative Enterprises'. This is in addition to many more recognitions and awards your company and its employees won during the year.



BHEL bags EEPC's Top Export Award for the 25th consecutive year



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

Marching on the Journey Ahead

I believe that India has the capability and the resolve to reach the zenith of its growth potential and with long-term drivers in place, BHEL is poised to harness the emerging opportunities.

I am grateful to you, our stakeholders - all business partners including customers for reposing faith in us, employees for their resolve and unstinted devotion, our Members on the Board for their wisdom and continuous support; members of the Management Committee for efficiently steering the company's resources and you, our shareholders for evincing trust & faith in BHEL & its Management. Various Ministries of Govt particularly the Department of Heavy Industry have been providing valuable guidance and support in our efforts.



*CMD, BHEL presenting the Final Dividend cheque for 2014-15
to Hon'ble Union Minister for HI&PE*

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 your company with its wide range of quality products & services. Therefore the Board of your company is confident of realising its vision of becoming a global engineering enterprise providing solutions for a better tomorrow, and honouring our Golden Legacy.



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



Sh. B. Prasada Rao
CMD



Sh. Rajesh Kumar Singh
Joint Secretary, DHI



Ms. Harinder Hira
Part-time Non-official
Director



**Board
of
Directors**



Sh. A.N. Roy
Part-time Non-official
Director



Sh. Atul Sobti
Director (Power)



Sh. D. Bandyopadhyay
Director (HR)



Sh. Amitabh Mathur
Director (IS&P)



*Commemorative Coin being released by the
Hon'ble Union Minister for HI&PE on the Golden Jubilee of BHEL*

As I conclude, I would like to once again draw your attention to our National emblem which carries three more things at its base - a wheel, a bull and a horse. Let it continue to inspire us to march on the path of dharma (righteousness) slogging like a bull yet remaining swift as a horse.

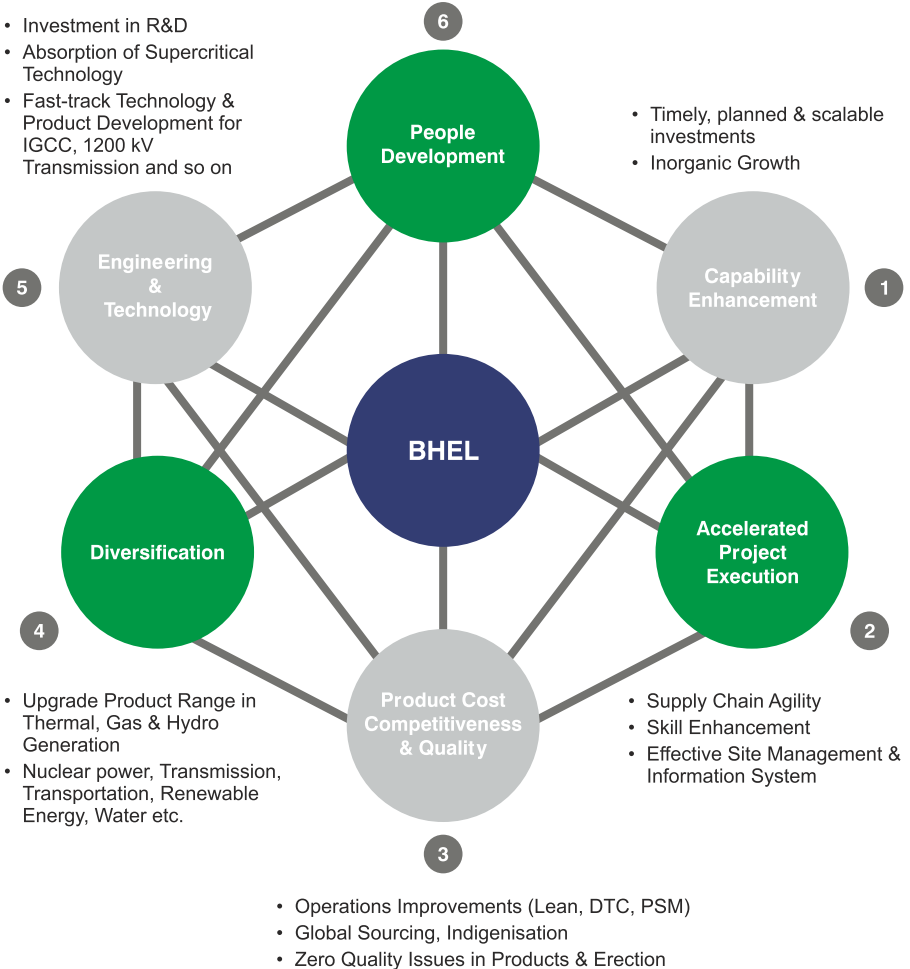
Thank you!

New Delhi
September 22, 2015


(B. Prasada Rao)
Chairman & Managing Director

Six-Point Agenda for Growth and Leadership

- Performance & Potential alignment of new inductees with Company's Challenges
- Leadership Development
- Technical/ Functional Competency Development



Shoring up the defence!



INS Kolkata is the lead ship of the Kolkata-class guided-missile destroyers of the Indian Navy. She was constructed at Mazagon Dock Limited (MDL). The most distinctive and noticeable armament of the Kolkata class is its 76 mm Super Rapid Gun Mount (SRGM) naval gun located forward of the bridge. The gun provides anti-shipping capability and anti-air capability in addition to naval gun fire support for land based operations. The gun is manufactured and supplied by BHEL. BHEL has supplied more than 30 SRGMs to Indian Navy till date.

The ship was officially commissioned by the Honourable Prime Minister of India, Shri Narendra Modi in a ceremony on 16 August, 2014.



Goldmine 2015



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www.bhel.com

Corporate Identity Number: L74899DL1964GOI004281