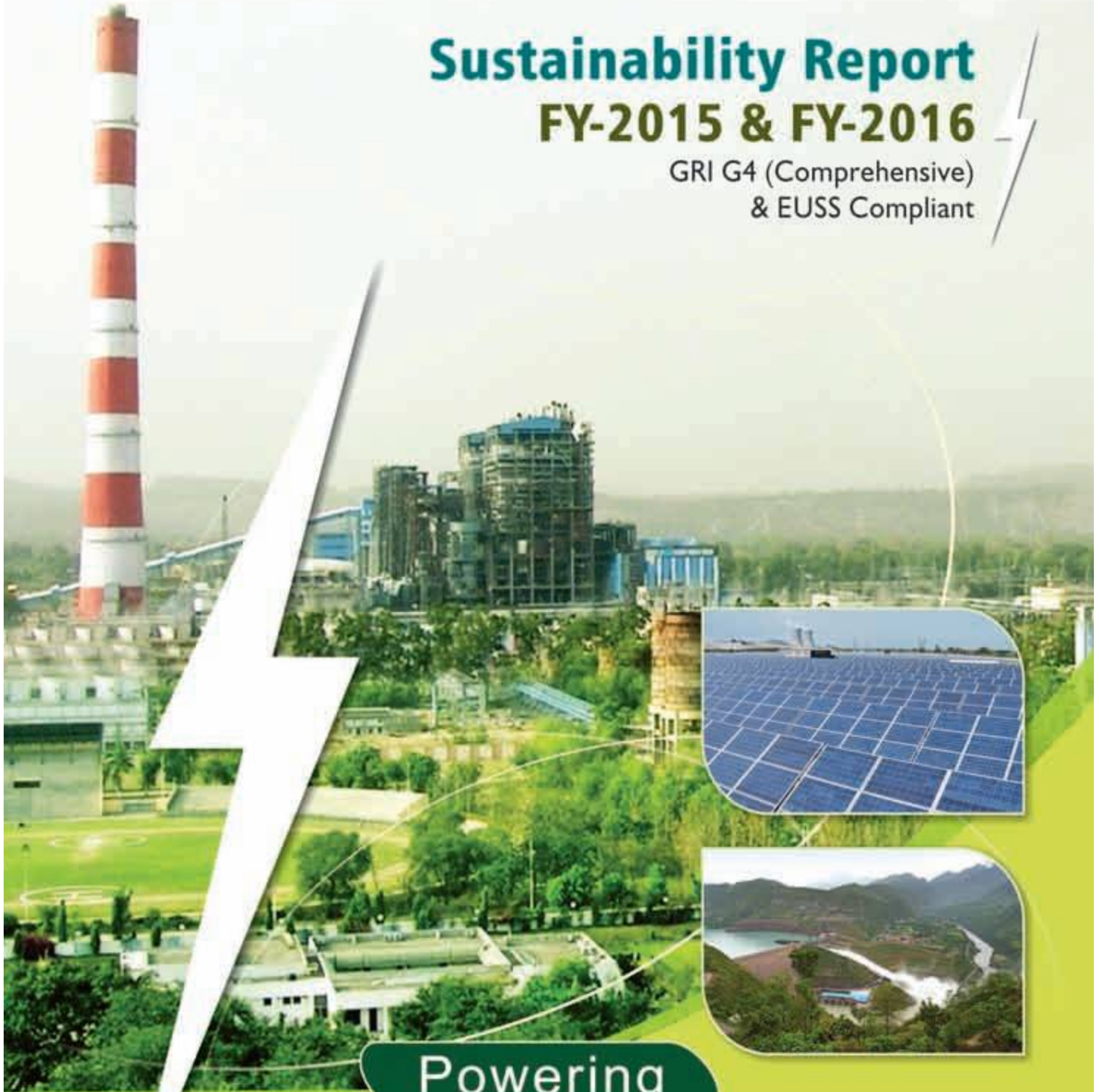




A Maharatna Company

Sustainability Report FY-2015 & FY-2016

GRI G4 (Comprehensive)
& EUSS Compliant



Powering

India's Growth





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Statement of CMD, NTPC

Dear Stakeholder,

I am pleased to present you the NTPC Sustainability Report for FY-2015 and FY-2016. This report is a proactive disclosure of the Company's Triple Bottom Line performance and is third-party assured, having achieved "In accordance – Comprehensive" level of reporting prescribed in the G4 guidelines of the Global Reporting Initiative (GRI).

I am also happy to share that NTPC is now a 50,000 MW+ Company, the twelfth largest power generation company globally, in terms of installed capacity.

Year 2017 is important as it marks three decades of crystallization of the "Sustainable Development" concept, in Brundtland Report (1987) – that focused on finding strategies to promote economic and social development in ways that avoid

environmental degradation, over exploitation or pollution and sidelined the less productive debates about whether to prioritize development or the environment.

The industry in India has come a long way in achieving sustainable development in its purest form and intentions. The traditional models of power generation and consumption are quickly changing and with them are changing the role and responsibilities of corporates.

NTPC is imbibing sustainability into its core business in multiple dimensions. We are also foraying into renewable generation hydro, solar and wind. Very significantly, as a part of the 100 GW solar capacity by 2022 target of Gol, we are committed to develop 10 GW of solar capacity and to facilitate another 15 GW Solar PV capacity addition through National Solar Mission.

We have already begun thought process on phasing out our old sub-critical power plants, some of which are also our best performing units. We have adopted clean coal technology – installing super and ultra-super critical units and researching for advanced ultra-super critical technologies for low emission, high efficiency power. Our strategy to strike a balance between operating sustainably and providing 24X7 affordable power to ALL has resulted in reduction of energy charges by almost 20% in FY-2017 as compared to FY-2015, excluding price increase due to external/regulatory factors.

Other environmental stewardship measures include maximizing ash utilization in cement, road and bricks manufacturing, minimizing water footprint by adopting zero liquid discharge, dry ash extraction systems, air-cooled condensers and reducing emissions by installation of flue gas desulphurization units, de-NOx systems and highly efficient electrostatic precipitators.

Our strategic sustainability drive includes starting coal mining operations for fuel security, entering fertilizer business and expanding into overseas markets (Bangladesh and Sri Lanka).

Very recently NTPC has leapfrogged its carbon sequestration activity by planting 10 million trees at one go, in a short span of three months, in and around our operations.

We take care of the communities around our plants by engaging into a whole gamut of intervention programs in the areas of health-care and sanitation, education, skill development, community infrastructure development, provision of clean drinking water, imparting vocational training, et al. bringing significant change in their lives. One of our significant achievements was construction of –29,000 toilets as a part of Swachh Bharat – Swachh Vidyalaya Abhiyaan.

Transformation of the power industry is a complex and dynamic process. NTPC lights every fourth bulb in the country with only 15.8% of installed capacity. As we continue to tread this path of excellence, we understand the urgency, and see ourselves transitioning to a low carbon future. The goal is to turn into a carbon positive and water positive organization.

We commit to continue to institutionalize principles of ethics, transparency, business agility, focus on safety and respect for society and environment in our work practices – to create a safe energy future.



(Gurdeep Singh)

Chairman and Managing Director



Vision

'To be the World's Leading Power Company, Energizing India's Growth'



Mission

Provide Reliable Power and Related Solutions in an Economical, Efficient and Environment friendly manner, driven by Innovation and Agility'



Core Values - ICOMIT

Integrity

Customer Focus

Organisational Pride

Mutual Respect & Trust

Innovation & Learning

Total Quality & Safety

Corporate Objectives

1

To realize the vision and mission, eight key corporate objectives have been identified. These objectives would provide the link between the defined mission and the functional strategies :

Business Portfolio Growth

- To further consolidate NTPC's position as the leading thermal power generation company in India and establish a presence in hydro power segment.
- To broad base the generation mix by evaluating conventional and non conventional sources of energy to ensure long run competitiveness and mitigate fuel risks.
- To diversify across the power value chain in India by considering backward and forward integration into areas such as power trading, transmission, distribution, coal mining, coal beneficiation etc.
- To develop a portfolio of generation assets in international markets.
- To establish a strong services brand in the domestic and international markets.

Customer Focus

- To foster a collaborative style of working with customers, growing to be a preferred brand for supply of quality power.
- To expand the relationship with existing customers by offering a bouquet of services in addition to supply of power-e.g. trading, energy consulting, distribution consulting, management practices.
- To expand the future customer portfolio through profitable diversification into downstream businesses, inter alia retail distribution and direct supply.
- To ensure rapid commercial decision making, using customer specific information, with

adequate concern for the interests of the customer.

Agile Corporation

- To ensure effectiveness in business decisions and responsiveness to changes in the business environment by:
 - Adopting a portfolio approach to new business development.
 - Continuous and coordinated assessment of the business environment to identify and respond to opportunities and threats.
- To develop a learning organizations having knowledge based competitive edge in current and future businesses.
- To effectively leverage Information Technology to ensure speedy decision making across the organisation.

Performance Leadership

- To continuously improve on project execution time and cost in order to sustain long run competitiveness in generation.
- To operate & maintain NTPC stations at par with the best-run utilities in the world with respect to availability, reliability, efficiency, productivity and costs.
- To effectively leverage Information Technology to drive process efficiencies.
 - To aim for performance excellence in the diversification businesses.
 - To embed quality in all systems and processes.

Corporate Objectives

Human Resource Development

- To enhance organisational performance by institutionalizing an objective and open performance management system.
- To align individual and organisational needs and develop business leaders by implementing a career development system.
- To enhance commitment of employees by recognising and rewarding high performance.
- To build and sustain a learning organisation of competent world-class professionals.
- To institutionalise core values and create a culture of team building, empowerment, equity, innovation and openness which would motivate employees and enable achievement of strategic objectives.

Financial Soundness

- To maintain and improve the financial soundness of NTPC by prudent management of the financial resources.
- To continuously strive to reduce the cost of capital through prudent management of deployed funds, leveraging opportunities in domestic and international financial markets.
- To develop appropriate commercial policies and processes which would ensure remunerative tariffs and minimize receivables.

- To continuously strive for reduction in cost of power generation by improving operating practices.

Sustainable Power Development

- To contribute to sustainable power development by discharging corporate social responsibilities.
- To lead the sector in the areas of resettlement and rehabilitation and environment protection including effective ash-utilisation, peripheral development and energy conservation practices.
- To lead developmental efforts in the Indian power sector through efforts at policy advocacy, assisting customers in reforms, disseminating best practices in the operations and management of power plants etc.

Research and Development

- To pioneer the adoption of reliable, efficient and cost-effective technologies by carrying out fundamental and applied research in alternate fuels and technologies.
- To carry out research and development of breakthrough techniques in power plant construction and operation that can lead to more efficient, reliable and environment friendly operation of power plants in the country.
- To disseminate the technologies to other players in the sector and in the long run generating revenue through proprietary technologies.



Team NTPC at Work

Performance Highlights

2

Major Highlights for FY-2015 :

- ▶ With the addition of 1,290 MW capacity (including 195 MW through Subsidiary Company) during the year, total installed capacity of NTPC (including subsidiaries & JVs) as on 31.03.2015 was 44,398 MW.
- ▶ Made foray into hydro generation with the commissioning of two units of 200 MW each.
- ▶ Commissioned solar plants of 35 MW capacity.
- ▶ Declared 1,195 MW (including 500 MW through JV Company) on commercial generation.
- ▶ Average PLF of coal based stations of 80.23% as against all India PLF of 64.46%; with two NTPC stations recording more than 90% PLF.
- ▶ Power stations of NTPC generated 241.26 BUs (260.58 BUs including JVs & Subsidiaries) of electricity (including solar and hydro power) which was 23.12% (24.97% including generation by JVs) of the total power generated in India (without Bhutan import) registering an increase of 3.42% (3.93% including JVs & Subsidiaries) over the previous years' generation of 233.28 BUs.
- ▶ Excellent MOU rating by Government of India for FY-2014.
- ▶ Reallocation of Coal blocks namely, Kerandari, Talaipalli, Dulanga, Chatti-Bariatu, Chatti-Bariatu (South), Now, Banai and Bhalumuda (both exclusively) and Kundanali-Luburi (jointly with J&K State Power Development Company Limited) have been allocated to NTPC.
- ▶ Capital expenditure (CAPEX) for the FY-2015 was ₹ 23,239.25 crore as against the target of ₹ 22,400 crore.
- ▶ 100% realization of current bills from customers.
- ▶ Recorded total income of ₹ 75,362.37 crore as compared to ₹ 74,664.61 crore in the FY-2014 and Net Profit after Tax (PAT) of ₹ 10,290.86 crore.
- ▶ Company rewarded its shareholders by issue of one non-convertible, secured, redeemable bonus debenture of face value of ₹ 12.50 each for every one equity share of ₹ 10 each held, aggregating to ₹ 10,306.83 crore.
- ▶ Dividend of ₹ 2.50 per share (total ₹ 2,061.38 crore) comprising interim dividend of ₹ 0.75 per equity share paid in February, 2015 and recommendation of final dividend of ₹ 1.75 per equity share for FY-2015.
- ▶ Company has been adjudged as the 'Best Company to Work for 2015' in a study conducted by Economic Times in Energy, Oil and Gas Industry Category.

Performance Highlights

Major Highlights for FY-2016:

- ▶ Power projects of 2,255 MW were commissioned.
- ▶ Declared 1,960 MW Power Projects on commercial generation.
- ▶ NTPC coal stations achieved a PLF of 78.61% against all India PLF of 62.29%; with three NTPC stations recording more than 90% PLF and 11 stations (including JVs) in top 25 stations of the country.
- ▶ Excellent MOU rating by Government of India for the FY-2015.
- ▶ Capital expenditure (CAPEX) for FY-2016 was ₹ 25,959.60 crore (Stand-alone) as against the MOU target of ₹ 23,000.00 crore. Achieved Group Capex of ₹ 32,090.89 crore during FY- 2016 against ₹ 28,289.56 crore during FY-2015.
- ▶ 100% realization of current bills from customers.
- ▶ Revenue from operations (Net) was ₹ 70,506.80 crore and total revenue was ₹ 71,696.07 crore. Net Profit after Tax (PAT) was ₹ 10,242.91 crore.
- ▶ Dividend of ₹ 3.35 per share, comprising of interim dividend of ₹ 1.60 per equity share paid in February 2016 and recommended final dividend of ₹ 1.75 per equity share for FY-2016.
- ▶ Cash contribution of ₹ 4,113.30 crore to Government of India's exchequer through dividend, dividend tax, income tax and wealth tax in the FY-2016.
- ▶ Market capitalization of ₹ 1,06,242.81 crore as on 31.03.2016.
- ▶ Construction of about 29,000 toilets in schools under Swachh Bharat- Swachh Vidyalaya Abhiyan.
- ▶ Planted approx. 5.25 lac trees during FY-2016 to mitigate the GHG emissions arising out of plant operations, thereby bringing total to about 2.3 crore planted trees till end of 31.03.2016.



Specimen of NTPC's Turn Around capability-Tatchar Thermal



CMD NTPC and Functional Directors

- ▶ About 8 crore bricks produced by fly ash brick plants of NTPC stations, which are being utilised in plant and township.
- ▶ Honoured with ASSOCHAM 1st Corporate Governance Excellence Award in listed PSUs category for FY-2015.
- ▶ Ranked No. 2 Independent Power Producer and Energy Trader Globally in the Platts Top 250 Global Energy Company Rankings, 2015.
- ▶ Adjudged 4th among the Asian electric utilities in 2016 rankings as per Forbes Global 2000.
- ▶ Awarded with Dun & Bradstreet Corporate Awards 2016 for best performing Company in India in Power Sector.
- ▶ For the year 2016, NTPC has been adjudged as the Best Company to work in the Public Sector Category, in a study carried out by Great Place to Work and the Economic Times.
- ▶ Bagged Golden Peacock Award for Excellence in Training from Institute of Directors for the year 2016.
- ▶ Total water withdrawal has decreased during the last five years.
- ▶ 58.83 million tonnes of ash was generated and 41.35% i.e. 24.32 million tonnes ash utilized.
- ▶ The Company has set a target to add 10,000 MW through Renewable Energy.

Sustainable Development Projects

3

Afforestation (SD Goal-13)

FY-2015

- Plantation of more than 3 lakh saplings during the FY-2015
- Development of green house nursery for the 2 lakh seedlings

FY 2016

- Plantation of more than 3 lakh trees
- Maintenance of trees planted in previous year



Energy Conservation and Renewable Energy projects (SD Goal-7)

FY - 2015

- Installation of 40 KW solar PV at Kayamkulam
- Installation of 7.5 KW solar PV at Ramagundam
- Installation of Solar Powered Submersible pump at Mouda

- Installation of Hybrid powered lighting at Solapur
- Replacement of street lights with LED lights at NTPC Stations
- Replacement of street lights with Solar lights at NTPC Stations

FY - 2016

- Providing solar lighting to approximately 800 houses at Rihand.
- Installation of 10 KW solar PV at Auraiya.
- Installation of 150 KW solar PV in school and hospital at Tanda.
- Installation of 40 KW solar PV in hospital at Vindhyachal.
- Installation of 30 KW solar PV in women polytechnic at Kayamkulam.
- Installation of 35 KW solar PV at Kayamkulam.
- Installation of 18 KW solar PV in ITI at Kayamkulam.
- Installation of 25 KW solar PV at Kudgi.
- Installation of 30 KW rooftop solar PV in ITI at Kawas.
- Installation of High mast lighting at Solapur & Kudgi.
- Replacement of street lights with LED lights at NTPC Stations.
- Installation of rooftop solar PV plant (120KW) at Unchahar.



Environment Studies (SD Goal-13)

Following environmental studies have been undertaken in FY-2015

- Human Health Risk Assessment study at Barh, Bongaigaon, Mouda & Kayamkulam
- Pollutant Source Apportionment Study at Barh & Bongaigaon
- Mass Balance Study at Dadri, Badarpur & Korba
- Impact of Station activities on crops and vegetation at Dadri, Auraiya, Faridabad, Anta, Ramagundam & TTPS
- Ash Leachate Study at Farakka & TSTPS

Waste Management (SD Goal-13)

FY 2014-15

- Vermi Composting at Bongaigaon, Sipat & Barh
- Installation of Bio-methanation Plant at Talcher Thermal
- Construction of Biogas plant at Sipat
- Installation of composting machine for organic waste conversion at Solapur.

FY 2015-16

- Domestic Horticulture Waste conversion into manure at Rihand.
- Installation of Bio-methanation Plant 1000Kg/per day at Sipat & Kahalgaon and 500Kg/per day at Tanda Station.
- Installation of composting machine for organic waste conversion at Mouda Station.



Biodiversity Conservation Projects (SD Goal-13)

FY - 2015-16

- Conservation of Olive Ridley Sea Turtle at Simhadri
- Study on Bio productivity of Gangetic Dolphins at Kahalgaon.

Some other projects (SD Goal-13)

FY - 2014-15

Continuous ambient air quality monitoring station in Bilaspur City at Sipat

A continuous ambient air quality monitoring station has been installed on advice of Environment Board for Public Awareness about air pollution levels of Bilaspur City. Equipment will survey air pollutants and other parameters to assess the air quality. The information generated will be displayed live on electronic boards round the clock to make people aware of the air they are breathing. Equipment will monitor all levels of harmful gases including sulphur-dioxide and carbon mono-oxide and levels of suspended particles PM 10 and PM 2.5 in the air. Monitoring Station is equipped with meteorological sensors to monitor wind direction & speed, solar flux, ambient temperature, rainfall and atmospheric pressure.

Installation of 40 KW solar PV at Kayamkulam

A solar PV plant of capacity of 40 KW has been installed on roof of steam turbine hall. The solar PV system is a Grid Tied system without battery. The Solar system have 2 sources of power viz - Solar power (Main) & Grid Power (Secondary). The system has a facility for synchronizing both solar & grid supply. When the solar generated AC power reduces due to any reason, the grid has to supply the remaining load in the system.

Sustainable Development Projects

Water Management (SD Goal-6)

FY 2014-15

- Rehabilitation of water ponds at Farakka, Korba & Sipat
- Rain water Harvesting at Anta, Korba, Auriya, Faridabad & Simhadri
- Dredging of water reservoir at Simhadri

FY 2015-16

- Dredging of water ponds at Simhadri
- Recharging of Ground water at Solapur
- Installation of Solar Irrigation Pump at Simhadri



Rehabilitation of water bodies at Sipat



Solar light at Kudgi



Bio-methanation plant at Sipat



Paper Recycling machine at Kayamkulam

About the Report



The current Sustainability Report is the fourth NTPC Sustainability Report, covering FY-2015 and FY-2016. The third Sustainability Report was published for FY-2014 on 31st August, 2015 and is available on the company website <http://ntpc.co.in/en/sustainability/reports-and-policies>. NTPC publishes its sustainability report on annual basis and follows financial year reporting period. However, the current report for FY-2015 and FY-2016 is being published combined. The combined Sustainability Report for FY-2015 and FY-2016 is online and will be available at: <http://www.ntpc.co.in/> The details on reporting period, scope, report boundary and methodology are as follows:

Reporting Period

Reporting period is from 1st April 2014 to 31st March 2016. Sustainability report is even more significant this time, as NTPC makes transition from GRI-G3.1 to GRI-G4 guidelines. The report is in line with GRI-G4 'in accordance' comprehensive option, along with its Electric Utility Sector Supplement (EUSS). Business Responsibility Report has also been published along with NTPC Annual Report FY-2015 and FY-2016, for which the link is given below: <http://www.ntpc.co.in/en/investors/annual-reports>

Scope and Boundary of the Report

There are no changes in the scope, boundary and measurement methods for this year's report. There is no re-statement in the report. There are changes in Installed capacity of power generating plant during this reporting period. However, there is no change in company structure, or ownership of the Company. In our previous year sustainability report, there were 22 thermal power stations and two Solar PV Projects considered as operational project; whereas, in

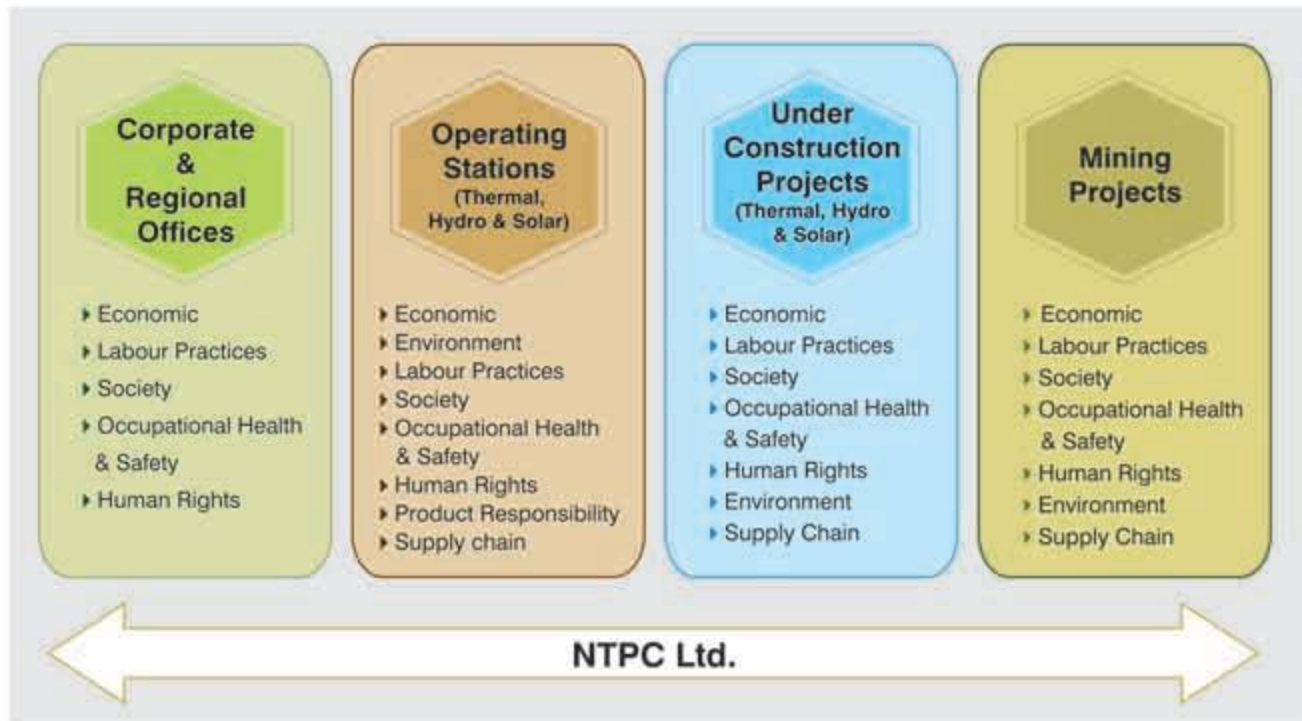
current reporting period, total operational projects are 23 thermal power plants, nine Solar and one Hydro power plant. All projects considered in current sustainability report are located in India and are under operation. Enlarging the scope from previous year, the current combined report includes NTPC Barh Thermal Power Station, Koldam Hydro Power Station and Solar Stations of Dadri, Port Blair, Faridabad, Ramagundam, Singrauli, Raigarh, Unchahar, Talcher-Kaniha and Ananthapuram. There are 26 entities (Joint Ventures and subsidiaries) included in the NTPC consolidated financial statement. However, joint ventures and subsidiaries are excluded from the reporting boundary. All relevant stakeholders have already been identified for the current period as given elsewhere in the report. The aspect boundary has been considered within the operating power plants.



A View of NTPC Sipat Control Room

About the Report

The details of inclusion of performance indicators (unless otherwise stated) are depicted in the chart given below.



Report Methodology

NTPC has a robust mechanism for reporting performance on the triple bottom line approach i.e. economic, environmental and social. Economic data in the report covers the financial results of NTPC, indicating the economic value retained. The fuel consumption and associated emission figures reported in the environment segment reflect NTPC's concern and efforts towards environmental improvement. Annual GHG emissions through coal and gas has been calculated in current reporting period, as coal and gas are the main fuels used in NTPC plants. The whole range of activities encompassing Human Rights, Occupational Health & Safety, Society, Human Resources and Product Responsibility are covered under social performance section of the report.

For collection of data on performance indicators, a uniform approach has been followed across all NTPC stations. Collected data is then processed at individual operating stations in accordance with universally accepted methodologies following approaches of measurement, calculation and analysis. There is no re-statement or significant change in measurement methods applied in this report with respect to the previous report, except if mentioned, wherein applicable. Report content and aspect

boundary provided in the report has been reviewed and approved by top management of the company.

The report conforms to 'Comprehensive G4' level as per GRI-G4 framework and has been assured by an independent external assurance provider, M/s URS Verification Pvt. Ltd., engaged by a well defined tendering process. They have conducted an independent assurance for this report and their Assurance Statement is a part of this report. The information and the data contained in the report has been assured in line with the Assurance Standard AA1000AS.

NTPC appreciates feedback from all internal and external stakeholders. For any additional information, please reach out to the address given below: Address of our company headquarter is given on the back cover page.

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Organization's Profile



NTPC is a Central Public Sector Undertaking (CPSU) under the Ministry of Power, Government of India, set up in 1975 & engaged in the business of generation of electricity and allied activities. It sells electricity to state-owned power distribution companies and State Electricity Boards in India. The company also undertakes consultancy and turnkey project contracts that involve project, construction and operation management of power plants including engineering.

The company has also ventured into oil and gas exploration and coal mining activities. It is the largest power company in India with an electric power generating capacity of 46,653 MW. Although the company has approx. 15% (including JVs) of the total national capacity, it contributes to around 24% (including JVs) of total power generation due to its focus on operating its power plants at higher efficiency levels (at approx. 78.61% against the national PLF rate of 62.29%).

The company started with coal based power generation & subsequently commissioned natural gas based power plants too. In pursuit of its vision to become an 'Integrated Power Major', the company started diversifying its activities through backward, forward and lateral integration in the entire value chain of power generation business. NTPC also subscribes to and endorses externally developed economic, environmental, social charters, principles by NVG, EUSS, UNGC etc.

In May 2010, NTPC was conferred Maharatna status by the GOI. It is ranked **4th among the Asian electric utilities in 2016 ranking as per Forbes Global 2000 and ranked 424th in the Forbes Global 2000 for 2014.**

1. Core Business of Electricity Generation and Capacity Addition :

Generation

During FY-2016, the power station of NTPC generated 241.98 BUs (263.42 BUs including JVs & Subsidiaries) of electricity (including solar and hydro power) which was 21.95% (23.90% including generation by JVs) of the total power generated in India (without Bhutan import), registering an increase of 0.30% (1.09% including JVs and subsidiaries) over the previous year generation of 241.26 BUs. Generation contributed by hydro stations was 2,308 BUs.

The total generation contributed by coal stations is 230.64 BUs during the year against generation of 229.55 BUs last year registering a growth of 0.5%. Generation from coal based units could have been still higher but due to reduced generation schedule there was opportunity loss of 37.76 BUs. The coal based stations operated at average Plant Load Factor (PLF) of 78.61% (All India PLF 62.29%) and average availability factor of 88.06% on bus bar during the year. The generation loss on account of coal shortage was brought down to 0.18 BUs in the current year from 8.895 BUs in FY 2015.

During the year, 3 coal stations out of 17 (commercial stations) achieved more than 90% PLF and ranked as top 3 stations in the country. Eleven (11) stations (including JVs) of NTPC are in Top 25 stations in the country.

The gas stations having a capacity of 4,017 MW achieved annual generation of 8,870 BUs at a PLF of 25.14% as against 11,588 BUs last year mainly due to reduced generation schedule which accounted for an opportunity loss of 25,529 BUs. The declared capacity of gas based stations was 97.30% as compare to 92.18% during previous year.

Organization's Profile

Parameters		All India		NTPC		% NTPC Share	
		2014-15	2015-16	2014-15	2015-16	2014-15	2015-16
Capacity (MW)	Standalone	271722	302088	38202	40012	14%	13%
	Including JVs			44398	46653	16%	15%
Generation (BU)	Standalone	1048.67	1107.82	241.26	241.98	23%	22%
	Including JVs			260.47	263.42	25%	24%

Station	Fuel	Capacity*		Gross Gen	
		2014-15	2015-16	2014-15	2015-16
Northern Region					
Singrauli	Coal	2000	2000	14516	16271
Rihand	Coal	3000	3000	21271	21055
Unchahar	Coal	1050	1050	7622	7013
Tanda	Coal	440	440	3161	3130
Auraiya	Gas	663	663	1664	1511
Vindhyachal	Coal	4260	4760	29574	31321
DBF		3787	3787	19667	16389
Badarpur	Coal	705	705	3281	2241
Dadri	Coal	1820	1820	12285	10048
Dadri	Gas	830	830	2530	2999
Faridabad	Gas	432	432	1571	1101
Western Region					
Mouda	Coal	1,000	1660	2311	1876
Korba	Coal	2600	2600	20061	20429
Sipat	Coal	2980	2980	21773	22285
Kawas	Gas	656	656	1741	1212
Jhanor Gandhar	Gas	657	657	1609	962
Anta	Gas	419	419	1654	942
Eastern Region					
Farakka	Coal	2100	2100	13379	12340
Kahalgaon	Coal	2340	2340	15619	15275
Barh	Coal	1320	1320	1747	4785
Talcher-Kaniha	Coal	3000	3000	23699	23967
Talcher –Thermal	Coal	460	460	3784	3764
Bongaigaon	Coal		250		117
Southern Region					
Ramagundam	Coal	2600	2600	20443	20250
Simhadri	Coal	2000	2000	15026	14470
Rajiv Gandhi CCP	Liquid Fuel	360	360	819	143
Hydro Region					
Koldam Hydro	Water		800		2308
Total		37692**	39902***	241140**	241815***

*as on 31st March 2015 and 31st March 2016

**Excludes 15.05 MU Solar Power Generation and 110 MW capacity

***Excludes 0.25 MU Hydro Power Generation and 400 MW capacity

****Excludes 162.59 MU Solar Power Generation and 110 MW capacity

Share of Installed Capacity & Electricity Generated



Capacity Addition

NTPC added 1290 MW during FY-2015 and 2255 MW during FY-2016 to its installed capacity as per details given below:

Project/ Unit installed during FY-2015	Capacity (MW)
NTPC owned	
Coal Based Power Projects	
Barh-II, Unit # 2	660
Hydro Power Projects	
Koldam Hydro, Unit # 1 and 2	400
Solar Power Projects	
Rajgarh Solar PV	20
Singrauli Solar PV	15
Under JVs (Coal Based Power Projects)	
Kantli (subsidiary of NTPC in JV with BSPGCL), Unit #3	195
Total Addition during FY 2014-15	1290

Project/ Unit installed during FY-16	Capacity (MW)
NTPC owned	
Coal Based Power Projects	
Vindhyachal –V, Unit#13	500
Bongaigaon, Unit#1	250
Mouda-II, Unit#3	660
Hydro Power Projects	
Koldam Hydro, Unit#3 and 4	400
Total NTPC owned	1810
Under JVs & Subsidiaries (Coal Based Power Projects)	
Kanti (subsidiary of NTPC in JV with BSPGCL), Unit#4	195
BRBCL (subsidiary of NTPC in JV with Ministry of Railways)	250
Total by JV & Subsidiaries	445
Total Addition during FY 2015-16	2255

Against the target of 11,920 MW for 12th Plan Period (as per CEA), capacity added in first three years reached 7,295 MW in FY-2015 and that in first four years has reached 9,550 MW in FY-2016.

The total installed capacity of the NTPC Group for FY-2015 and FY-2016 is tabulated below:

Description	Total Installed Capacity	
	FY-2015	FY-2016
Owned by NTPC	MW	MW
Coal based projects	33,675	35,085
Gas based projects	4,017	4,017
Renewable Energy Projects	110	110
Hydro Projects	400	800
Sub-total	38,202	40,012
Joint Ventures & Subsidiaries	MW	MW
Coal based projects	4,229	4,674
Gas based projects	1,967	1,967
Sub-total	6,196	6,641
Total	44,398	46,653

With the commissioning of Anantpur Solar PV unit of 250 MW and addition of Patratu Thermal Power Plant of 325 MW after 31.03.2016, the installed capacity of NTPC has become 47,228 MW as on 31.07.2016.

Further, NTPC has adopted a multi-pronged growth strategy which includes capacity addition through green field projects, brown field expansions, joint ventures and acquisitions; towards its journey to become a world class integrated power major. In addition to furthering capacity addition through Coal and Gas based power projects, NTPC has been pursuing enhancement of its power generation portfolio through Hydro & Renewable Energy projects.

NTPC has made a corporate plan to become 128 GW company by year 2032 having approximately 27% generation through renewable energy.

Projects under Implementation

NTPC's various projects having aggregate capacity of 24,009 MW including 4,050 MW being undertaken by Joint Venture and Subsidiary Companies are under implementation at 23 locations across length and breadth of the country as on 31.03.2016. This includes 22,430 MW through coal based projects, 1,579 MW through renewable energy projects, comprising 811 MW through hydro capacity, 8 MW small hydro projects and 760 MW of solar power PV projects.

NTPC has awarded Telangana, Phase-I (2x800 MW), Thermal Power Project, Mandasaur (250 MW) and Bhadla (260 MW) Solar Projects during the Financial Year 2016. As on 30.06.2016, NTPC has projects for 6,640 MW thermal capacity and 768 MW renewable capacity under bidding.

Feasibility Reports for 16,830 MW capacity have already been approved by the Board and project development activities are in various stages. NTPC has signed Memorandum of Agreement on 03.05.2015 for acquisition of Patratu Thermal Power Station (770 MW) through a joint venture company promoted by NTPC and Jharkhand Bijlee Vitran Nigam Limited. The proposed JVC shall also take up expansion of power project by addition of 3x800 MW units in Phase-I and 2x800 MW units in Phase-II.

NTPC has signed an MOU with Chattisgarh Renewable Energy Development Agency (CREDA) for development of Tatapani Geothermal project.

2. Development of Coal Mining

NTPC had been allocated eight coal blocks, namely, Pakri-Barwadih, Chatti-Bariatu, Kerandari, Talaiipalli, Dulanga, Banai, Bhalumuda and Mandakini-B by the Government of India. In addition, Government of India has also allocated Kudanali-Luburi coal block jointly to NTPC and J&K State Power Development Company Limited (J&KSPDCL), with NTPC's share of coal reserves in this block being two-third. Joint Venture Agreement had been signed between NTPC and J&KSPDCL on 15.06.2015 for formation of 67:33 joint venture company for exploration, development and operation of the coal block.

Similarly, Banhardih coal block, allocated earlier to Jharkhand Urja Utpadan Nigam Limited, has now been allocated to Patratu Vidyut Utpadan Nigam Limited, a Subsidiary Company incorporated between NTPC and Government of Jharkhand.

With about 7 billion metric tonnes of geological reserves estimated from our own eight coal blocks, altogether, NTPC expects to produce about 107 Million Metric Tonnes of coal per annum.

In Pakri-Barwadih, mining operations have commenced from the western quarry with effect from 17.05.2016 and are also expected to start from the eastern quarry of this

block shortly. For coal transportation from Pakri-Barwadih, Bandag-Hazaribagh Railway siding, funded by NTPC, is now operational with commencement of coal transportation from CCL's Amarpali block to Barh Power Station.

NTPC has progressed well in other coal blocks too. Subsequent to the issuance of allotment orders by Ministry of Coal, Government of India, forest clearance for Dulanga Coal Block has been accorded by MOEF & CC on 23.12.2015. NITs have been published for appointment of Mine Developer-cum-Operator (MDO) for Talaipalli, Dulanga and Chatti-Bariatu coal blocks and techno-commercial bids have been received.

After completion of detailed exploration in Banai coal block, Geological Report (GR) has been received from CMPDIL on 13.04.2016 and is now under approval at Ministry of Coal. For Bhalumuda coal block, detailed exploration has been completed and draft GR is under finalization by CMPDIL. For Mandakini-B coal block, Company has awarded a contract to CMPDIL for carrying out detailed exploration and for preparation of GR and drilling activities have commenced. NTPC has initiated the process for acquisition of mining area land in these three new blocks i.e. Banai, Bhalumuda and Mandakini-B.

The joint venture company, namely, CIL NTPC Urja Private Limited, formed with Coal India Limited, is exploring development and operation of washery reject-based FBC power plants near upcoming/ existing coal washery of Coal India Limited.

3. Power Trading through 'NTPC Vidyut Vyapar Nigam Ltd.' (NVVN), a wholly owned subsidiary of NTPC

NTPC Vidyut Vyapar Nigam Limited (NVVN), a wholly owned subsidiary is involved in power trading, sale of fly ash and cenosphere. During the FY-2016, the Company transacted business with various State Electricity Boards spread all over the country and traded 12,766 MUs of electricity.

The Company is a designated Nodal Agency for implementation of Jawahar Lal Nehru National Solar Mission Phase-I by purchasing and selling of grid connected bundled solar power across the country. NVVN has also been designated as the nodal agency for cross border trading of electricity with Bhutan, Bangladesh and Nepal.

PPA was signed on 15.02.2016 between NVVN and Nepal Electricity Authority (NEA) for supply of upto 80 MW power from February to June 16 through 400 KV Muzaffarpur- Dhalkabar transmission line. Power supply to NEA started on 18th February 2016.

NVVN has paid dividend of ₹ 20 Crore to NTPC in FY-2016.

4. Consultancy Services

Consultancy Wing of NTPC offers services like Engineering, Operation & Maintenance Management, Project Management, Contracts & Procurement Management, Quality Management, Training & Development etc. These services have been provided in international markets in Gulf countries, Bangladesh, Nepal, Sri Lanka and Bhutan.

On international front, Consultancy Wing has been associated with Trincomalee Power Company Ltd as Owners' Engineer for setting up their (2x250 MW) Coal Based Power Project. It is also providing O&M Management Services to (2x120 MW) Siddhirganj Peaking Power Plant of Electricity Generation Company of Bangladesh under a World Bank funded contract.

On domestic front, Consultancy Wing has been effectively sharing its expertise with State, Central PSUs and other clients. This includes Owners Engineer Services to The Singareni Collieries Company Limited for their coal based power project in Adilabad district, Telangana and Project Monitoring Services to MPPGCL for (2x600MW) Shree Singaji TPP & (2x250MW) Satpura TPP by deputing NTPC experts at site.

5. Exploration Activities

In Cambay exploration block (CB-ONN-2009/5), held by NTPC as operator with 100% participating interest, drilling of all seven exploratory wells have been completed and testing of wells is in progress.

In the KG basin exploration block viz. KG-OSN-2009/4 where ONGC is the operator and NTPC has 10% stake, the exploration activities are in progress and ONGC has submitted a proposal to the Government of India for reduction in minimum work programme as the permitted area of the block for exploration has been reduced because of non-grant of defense clearance.

The other KG basin exploration block viz. KG-OSN-2009/1 and the Andaman basin exploration block viz. ANDWN- 2009/13, where ONGC was the operator and NTPC had 10% stake, had been relinquished to Government of India as per the advice from Operator (ONGC).

6. Globalisation Initiatives

▶ **Trincomalee Power Company Limited (TPCL)**, a 50:50 joint venture between NTPC and Ceylon Electricity Board was formed to undertake the development, construction, establishment, operation and maintenance of a coal based electricity generating station of 2x250 MW capacity at Trincomalee at Sri Lanka. EIA clearance was granted by Central Environmental Authority (CEA) on 02.02.2016 with some specific conditions. However, Secretary, Ministry of Power & Renewable Energy, Govt. of Sri Lanka (GoSL) has requested Secretary



Jeff Immelt, CEO GE Visited NTPC

(Power), Govt, to form a Joint Working Group to explore the possibility of changing fuel source of Power Project from Coal to LNG.

- Bangladesh-India Friendship Power Company Private Limited**, a 50:50 joint venture Company between NTPC and Bangladesh Power Development Board (BPDB) was formed for developing a 2X660 MW Coal based power project (Maitree Super Thermal Power Plant) at Khulna Division, Rampal, Bangladesh. EPC contract of the project except township had been awarded to BHEL. Other activities are also in progress. An MoU has been signed with Bangladesh Shipping Corporation (BSC) on 24.01.2016 to explore the possibility of BSC taking up part/full coal logistics for the Project.

7. Strategic Diversification – Increasing Self-Reliance

In order to strengthen its competitive advantage in power generation business, NTPC has diversified its portfolio to emerge as an integrated power major, with presence across entire power value chain through backward and forward integration into areas such as coal mining, power equipment manufacturing, power trading and distribution.

NTPC continuously explores business opportunities through market scanning and adopts new business plans accordingly.

8. Capacity Addition through Renewable Energy Sources

NTPC is adding capacity through renewable sources of energy, to broad-base its generation mix to ensure long term competitiveness, mitigation of fuel risks and promotion of sustainable power development.

Green Energy Commitment: NTPC has committed to develop 10 GW of Renewable Energy Projects under Green Energy Commitment to Govt. of India.

NTPC has already commissioned 310 MW of solar projects as on 30th June 2016 and 560 MW Solar Power Projects are under execution which includes Mandsaur Solar (250 MW), Bhadla Solar (260 MW) and Anantpur Solar (50 MW).

NITs have been issued for 1,750 MW of Solar PV projects to be set up in the states of Andhra Pradesh and Karnataka.

National Solar Mission: NTPC has been entrusted to develop 15 GW Solar PV through National Solar Mission (NSM) Phase-II in three tranches between 2014-15 to

2018-19, where the Company will be the facilitator/trader between Discoms and Developers.

NTPC will purchase power from the developers and sell it to the Discoms. Under Tranche-I, 3000 MW of Solar PV capacity upto 2016-17 has been planned. NITs for 3000 MW of Solar PV capacity to come up in the states of Andhra Pradesh, Rajasthan, Karnataka, Telangana and Uttar Pradesh have been issued and awards placed for 2,520 MW projects till 30th June 2016. The developers have been selected through reverse auction.

9. Hydro Power

NTPC now has its footprints in renewable energy by developing hydro projects as detailed below:

i. Koldam HEPP (4x200 MW) is on the river Satluj at Barmana, District Bilaspur (Himachal Pradesh). All the four units of 200 MW each have been declared commercially operational on 18.07.2015. Since then the project is running successfully.

ii. Tapovan Vishnugad HEPP (4x130 MW) is on River Dhauliganga, District Chamoli (Uttarakhand). Project is under construction with approximately 70% work completed. After completion of 7.65 km out of 12.08 km of Head Race Tunnel (HRT), the contract was terminated on 09.01.2014. Award of balance works of HRT placed on 09.03.2016. Construction of Barrage, Switchyard and Electro-Mechanical & Hydro-Mechanical works are in progress.

iii. Lata Tapovan HEPP (3x57 MW) is just upstream of Tapovan-Vishnugad HEPP. The work was stopped by Hon'ble Supreme Court through order dated 07.05.2014 for 24 Hydro Projects in the State of Uttarakhand including Lata-Tapovan. The MOEF&CC constituted an expert body, which submitted its report on 19.10.2015 and MOEF submitted the same in court on 05.11.2015, where Lata Tapovan had been recommended for implementation with compliance of certain additional conditions. NTPC submitted in Court on 19.11.2015 that the conditions recommended by expert body shall be strictly complied. On the hearing held on 26.04.2016, Additional Solicitor General of India represented MOEF and informed the Court that Lata - Tapovan Project must be implemented. The matter is still to be decided by the Supreme Court.

For National Board of Wild Life (NBWL) Clearance for Tapovan- Vishnugad and Lata Tapovan HEPPs, the proposal regarding redefining of Eco Sensitive Zone was discussed in Uttarakhand State Cabinet Meeting and shall be forwarded for MOEF&CC, GOI for its approval.

iv. Rammam-III HEPP (3x40MW) -This project is situated on river Rammam in Teesta Basin, Darjeeling (West Bengal). Civil works of Barrage, Power House, HRT& S/Y are in progress. The river has been diverted

through a diversion channel and the work in the river bed has been started for construction of Barrage.

10. Activities in other business areas taken up by JVs and Subsidiaries Companies –

- ▶ **UPL (Utility Powertech Ltd.)** – JV with Reliance Infrastructure Limited - Takes up assignments of construction, erection and supervision of business in power sector and other sectors like O&M services, Residual Life Assessment Studies, non-conventional projects etc. UPL has paid dividend of ₹ 5 Cr. to NTPC in FY 2015-16.
- ▶ **NASL (NTPC ALSTOM Power Services Pvt. Ltd.)** – JV with ALSTOM Power Generation, AG - Takes up renovation and modernization assignments of power plants both in India and in other SAARC countries. NASL has paid dividend of ₹ 0.6 Cr. To NTPC in FY 2015-16. R&M including RLA work orders are under execution. Bids have also been submitted for other work orders. Due to acquisition of thermal power business of Alstom by GE, NTPC's consent & waiver on certain clauses of Shareholder's Agreement are required. Matter is under discussion with GE.
- ▶ **EESL (Energy Efficiency Services Ltd.)**– JV with PFC, PGCIL and REC -The Company was formed for implementation of Energy Efficiency projects and to promote energy conservation and climate change. The Company is working on Energy Audit of Buildings Perform Achieve Trade (PAT) Scheme work and standard & labeling work of BEE, consultancy work, implementing Bachat and agricultural & municipal pump replacement for various State Govts. The Company has paid dividend of ₹ 67.95 lacs for 2014-15 to the Company.
- ▶ **National High Power Test Laboratory Pvt. Ltd (NHPTL)** – JV with NHPC, PGCIL, DVC and CPRI - The Company is setting up High Voltage Transformer (HVTR) Lab and Medium Voltage Transformer (MVTR) Lab at Bina, M.P. for short circuit testing of Transformers upto 765 kV. Installation of 100KV isolator matrix structure in MVTR is in progress.
- ▶ **NTPC Electric Supply Company Limited**, a wholly owned subsidiary was incorporated to foray into the business of distribution and supply of electrical energy as a sequel to reforms initiated in the power sector. It was implementing Rajiv Gandhi Gramin Vidyutikaran Yojna (RGGVY) projects on turnkey basis and undertaken turnkey execution of sub-stations for utilities and project management consultancy. The shareholders of NESCL have transferred existing business of deposit and consultancy works under RGGVY from NESCL to

NTPC on 01.04.2015. This subsidiary had also dis-associated with the business of retail distribution of power in various industrial parks developed by Kerala Industrial Infrastructure Development Corporation (KINFRA), through its Joint Venture Company namely KINESCO Power and Utilities Private Limited, as the future prospects of the JV Company are bleak. The shares held by NESCL had been purchased by KINFRA on 17.12.2015 and thus NESCL had ceased to be the joint venture partner of KINESCO.

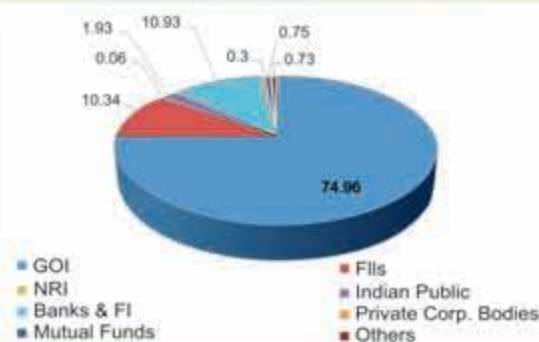
- NTPC-BHEL Power Projects Pvt. Limited (NBPPL)**, a JV with BHEL was incorporated for taking up activities of engineering, procurement and construction (EPC) of power plants and manufacturing of equipments. The Company has developed manufacturing facility at Mannvaram, Tirupati in Andhra Pradesh for CHP and AHP. The Company is executing EPC contracts for balance of plants packages of Palatana Combined Cycle Power plant in Tripura, Namrup Combined Cycle Power Plant in Assam, Balance of Plant including Erection & Commissioning works of the entire plant at Monarchak, Tripura for NEEPCO and EPC Contract for Unchahar. Both the units of Palatana have been commissioned and work at other sites is in progress. The Company's order bookings as on March 31, 2015 were ₹ 35 lakh. Total turnover of the Company was ₹ 520 crore (provisional) for the year 2014-15.
- Transformers and Electricals Kerala Limited (TELK)** - NTPC has acquired 44.6% stake in Transformers and Electricals Kerala Limited (TELK) from Government of Kerala on June 19, 2009. The Company deals in manufacturing and repair of Power Transformers.

Nature of Ownership & Legal Form

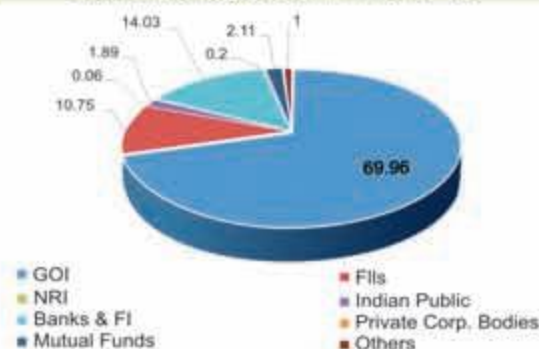
NTPC is a Government Company within the meaning of section 2 (45) of the Companies Act, 2013 as the President of India presently holds 69.96% of the paid-up capitals reduced from 74.96% in FY-2015. The balance of its equity comprises of domestic institutional investors, foreign institutional investors, individuals investors and others as depicted in chart:

Shareholding Patterns on the basis of ownership:

Shareholding pattern FY 2014-15



Shareholding pattern FY 2015-16



NTPC's Commitment to clean energy

Organization's Profile

Market Served :

NTPC sells electricity from its Power Generating Stations located across India to various bulk customers located throughout the country. Our customers are mainly State Electricity Utilities like State Electricity Boards, State Electricity Distribution Companies, SEB Holding Companies, State Power Departments, who account for around 90% of the sale of electricity. Besides, NTPC also sells to private distribution companies in Delhi and some bulk consumers like Railways.

Currently, all sale of electricity is through long term Power Purchase Agreements entered with the respective customers made for supply of electricity from a specific Power Station. The Power Purchase Agreements are generally valid for 25 years in line with expected life of the plants.

As per statutory provisions the tariff for sale of electricity from all of the NTPC Power Stations is being determined by the Central Electricity Regulatory Commission.

NTPC has a Memorandum of Understanding (MoU) with the Government of India (GoI) under which a system of target setting has been instituted. According to this system, the annual performance is assessed at year-end against the targets set under the MoU on the basis of various parameters like productivity, human resource development activities mainly financial, project implementation, operational performance etc. NTPC's performance against the set targets in the MoU FY-2015 was rated excellent and rating of FY-2016 is awaited from DPE. The performance of the Functional Directors of the Board is also measured through the Performance Evaluation System, also formed under the system of target setting.

Commercial Capacity

The following units were declared commercial during the year 2014-15, adding 1195 MW to commercial capacity of the company.

Project/Unit	Capacity (MW)	COD*
NTPC Units-Coal Based (I)		
Barh-II, Unit#4	660	15.11.2014
Total (I)	660	
NTPC Units-Renewable Energy Units (II)		
Rajgarh Solar**	20	30.04.2014
Singrauli Solar	15	31.12.2014
Total (II)	35	
NTPC's JV Units- Coal Based (III)		
Vellur, Unit #3 (JV with TANGEDCO)	500	26.02.2015
Total (III)	500	
Total capacity declared commercial during 2014-15 (incl. JVs)- (I) + (II) + (III)	1195	

* COD- Commercial Operation Date

** Out of total capacity of 50 MW, 30 MW capacity of Rajgarh Solar PV was declared on commercial operation on 31.03.2014.

The following units were declared commercial during the year 2015-16, adding 1960 MW to commercial capacity of the company

Project/Unit	Capacity (MW)	COD*
NTPC Units-Coal Based (I)		
Vindhyachal -V, Unit# 13	500	30.10.2015
Barh-II, Unit#5	660	18.02.2016
Total (I)	1160	
NTPC Units-Hydro (II)		
Koldam, Unit#1 to 4	800	18.07.2015
Total (II)	800	
Total capacity declared commercial during 2015-16 (I)+(II)	1960	

SUPPLIERS AND VENDORS

At NTPC, we treat our suppliers as our partners in our sustainability journey. Our suppliers, contract manufacturers & service providers are intrinsic to the business. For setting up of Power Plants and catering to the Operations & Maintenance requirements of operating Power Stations, NTPC engages Contractors / Suppliers. The Contractors / Suppliers, while performing their contractual obligations, supply plant, equipment and spares manufactured by themselves as well as through other sub-vendors appointed by them. Low value contracts for jobs like hiring of jeeps, gardening, horticulture, housekeeping, cleaning etc. at our plant sites are given to Plant Affected People (PAPs) for supporting their livelihood.

Identification of prospective Contractors/Suppliers is generally done by formulating qualifying requirements. Selection of Contractors/Suppliers is done through tendering process; whereby, bids are invited from prospective bidders. Bids are evaluated in accordance with the evaluation criteria stipulated in the bidding documents. After evaluation, the bidder, whose proposal is found to be responsive and meeting the stipulated qualifying requirements and has the lowest evaluated price, is selected as the Contractor/Supplier.

Notice Inviting Tenders (NITs) / Invitation for Bids (IFBs) are published in regional and national newspapers and also hosted on NTPC's website, freely accessible to every prospective Bidder / Supplier. Copy of NITs / IFBs is also sent to Contractors / Suppliers who have been associated with or executed similar Contracts for NTPC in the past. In case of tendering on International Competitive Bidding (ICB) basis, the IFB is published in the Indian Trade Journal and copy of the IFB is sent to High Commissions / Embassies of other countries in India as well, for further propagation.

Major Fuel Supplies	FY 2015-16	FY 2014-15	Suppliers
Fuel Cost (coal, Gas, oil & Naptha) paid(Rs. Crore)	43,793.24	48,833.57Cr	
	% break-up		
Coal	92.86 %	88.91 %	Coal India & its subsidiaries, Singareni Collieries Company Limited (SCCL)
Gas	6.06 %	8.12 %	For the six gas based stations (Anta, Auraiya, Dadri, Faridabad, Kawas & Gandhar), GAIL has been supplying domestic gases (APM/PMT/Non-APM). Spot RLNG suppliers are GAIL, IOCL, BPCL & GSPC.
Oil	0.85 %	0.98 %	IOCL, BPCL
Naptha	0.23 %	1.99 %	Liquid fuel Naptha is used only by Rajiv Gandhi combined cycle gas power station. Supplier is BPCL.
Water withdrawal			
Charges (Rs. Crore)	515.12	488.86	NTPC enters into an agreement for water withdrawal with concerned agencies of State Government in which state the power plant is located.

During the reporting period significant change in supply chain : Imported coal marking a decrease of 42.1% to optimize power generation cost.

Pre-bid meetings with the prospective bidders are held in case of procurements exceeding certain specified value. The Pre-bid meeting provides the prospective bidders a forum to raise queries with respect to the bidding documents. Necessary clarifications are issued by NTPC to all the prospective bidders. In post-award phase, Contract Review Meetings are also held at regular intervals with Contractor / Supplier and other important stakeholders such as the indenting department / executing department, to identify and resolve problems at hand during execution of the Contract.

Various issues and concerns are raised by prospective Bidders and Contractors / Suppliers in different forums. These issues and concerns are reviewed and are suitably addressed. If required, necessary changes in Policy and Procedure are also done after approval of the Management.

PROCUREMENT PRACTICES

Vendor Assessment: Whenever a new bidder participates in a bidding process, the bidder's capacity and capability is assessed to ascertain that it has the required facility and requisite financial health to execute the Contract or complete the Supplies as per the Customer's requirements.

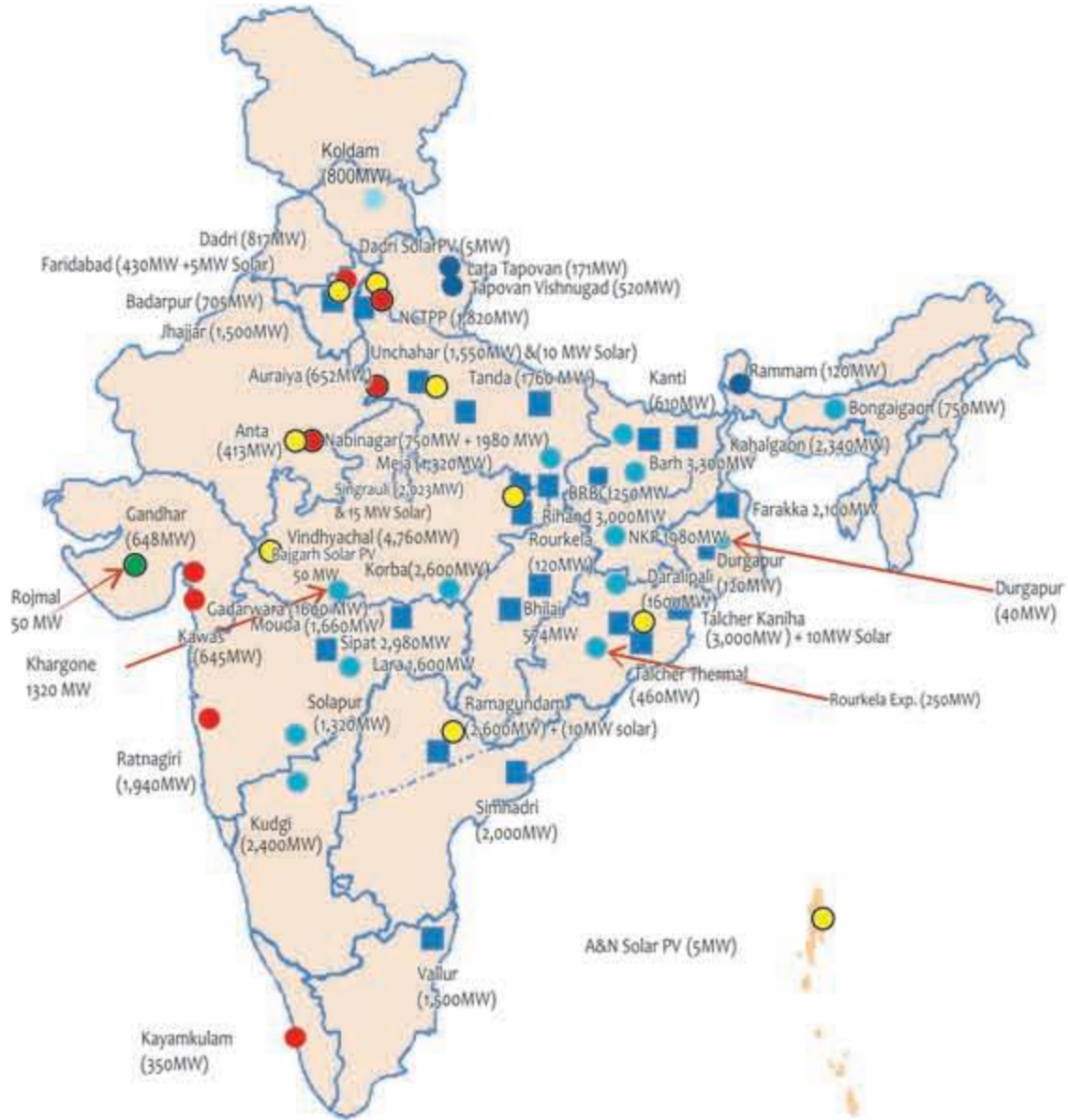
Reference Work Verification: The reference jobs furnished by the bidders in fulfillment of the Qualifying Requirements are verified with their respective Clients. In case of a new bidder, the capacity & capability assessment may also be taken up.

Performance Reports: During the evaluation of a bidding process, the Performance Report of all the Bidders, who are engaged in or have executed in the past Contracts for NTPC, is sought from respective sites. Any areas needing specific attention are addressed through appropriate resolutions with the bidders. In case of major non-performance, the bidder may be rejected too.

Contract Review Meetings (CRMs): During execution of a Contract, CRMs are held at regular intervals with all the important stakeholders. CRM provides an important forum to identify and discuss the problems in the supply chain being faced at the Site and by the Contractor. Wherever needed, necessary resolution is agreed to as a part of Minutes of Meeting.

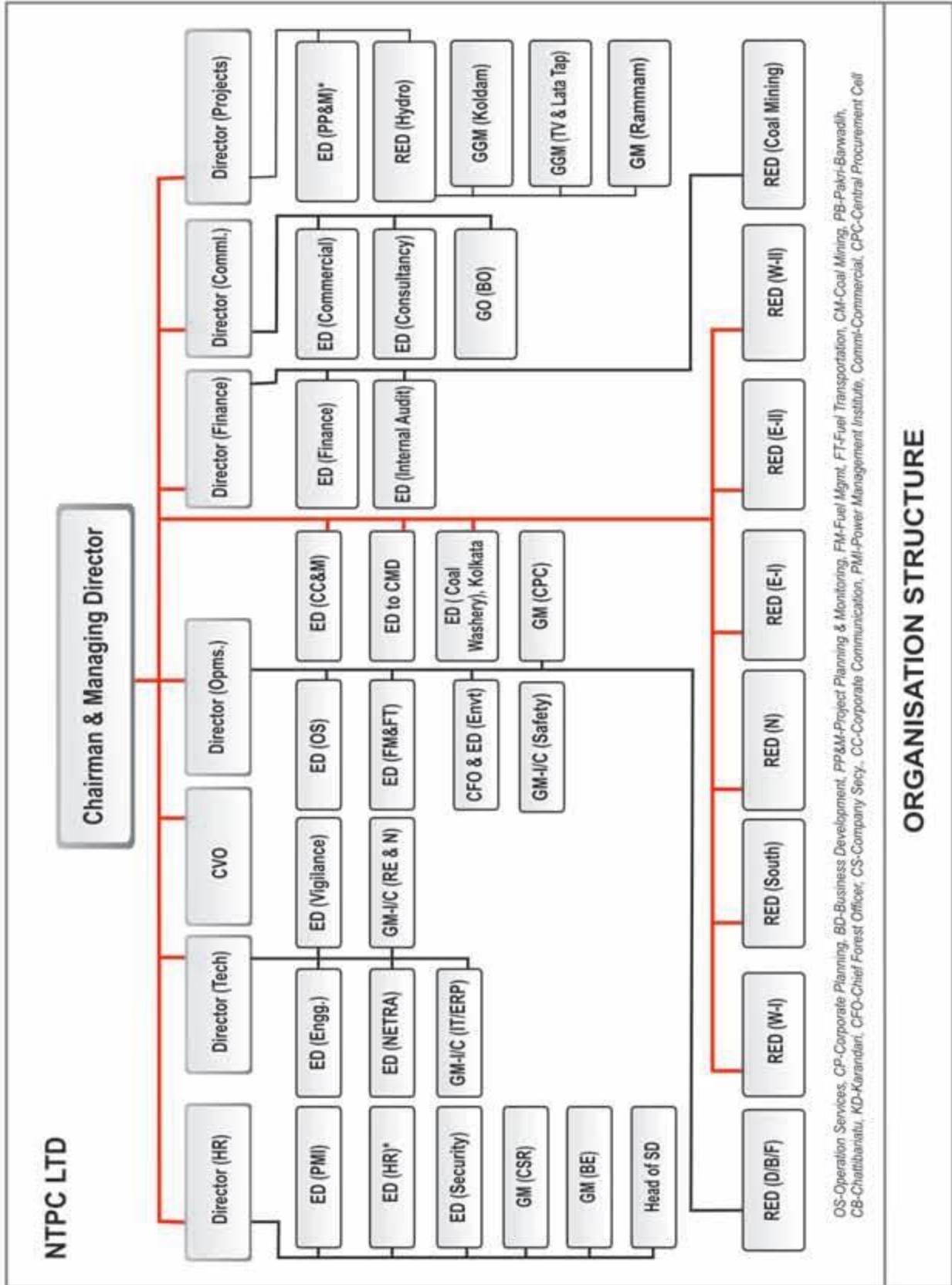
Enlistment: In case of regular work packages, which have standardized eligibility criteria, NTPC goes for enlisting the suppliers / contractors / agencies. Once the list of eligible suppliers / agencies is prepared, procurement for such packages from the enlisted agencies is done on Limited Tender Enquiry basis. Enlistment helps reduce lead time as well as maintain long term relationship with the prospective contractors. While selecting suppliers, NTPC follows the Domestic Price Preference as per the extant Govt. Guidelines, which are aimed at giving preference to local supplies over supplies from abroad. The preference is given invariably in all procurements for Power Plants done on International Competitive Bidding basis.

NTPC Pan India Presence



Map not to scale. Includes capacity of under construction plants

- Coal Power Station
- Ongoing Hydro Power Projects
- Gas Power Stations
- Ongoing Thermal Projects
- Solar PV
- Hydro Power Projects
- Wind Under Construction



Organization's Policies

6

NTPC as a progressive organization, has promulgated following policies (web links mentioned herein for complete details) for effective governance, maintaining transparency & living up to the expectations of its shareholders:

▶ **Code of Conduct**

<http://www.ntpc.co.in/investors/code-of-conduct>

▶ **R&R Policy**

<http://www.ntpc.co.in/en/corporate-citizenship/r-and-r-policies>

▶ **CSR and Sustainability Policy**

<http://www.ntpc.co.in/download/ntpc-policy-csr-sustainability>

▶ **Fraud Prevention Policy**

<http://www.ntpctender.com/about/FraudPolicy.asp>

▶ **Internal Code of Conduct for prevention of insider trading**

<http://www.ntpc.co.in/download/internal-code-conduct-prevention-insider-trading-dealing-securities-ntpc-limited>

▶ **Code of Corporate fair disclosure practices for prevention of insider trading**

<http://www.ntpc.co.in/download/code-corporate-fair-disclosure-practicces-prevention-insider-trading>



Board of Directors at AGM 2016

Organization's Policies



NTPC Sustainability Meet

▶ **Related Party Transaction Policy**

<http://www.ntpc.co.in/download/related-party-transaction-policy-ntpc>

▶ **Whistle Blower Policy**

<http://www.ntpc.co.in/sites/default/files/downloads/WhistleBlowerPolicy.pdf>

▶ **Policy for determination of materiality of events or information for disclosure**

[http://www.ntpc.co.in/sites/default/files/downloads/NTPC % 20-% 20 Policy % 20 For % 20 Determination % 20 of % 20 Materiality % 20 of % 20 events.pdf](http://www.ntpc.co.in/sites/default/files/downloads/NTPC%20-%20Policy%20For%20Determination%20of%20Materiality%20of%20events.pdf)

▶ **Policy on maintenance & preservation of documents**

[http://www.ntpc.co.in/sites/default/files/downloads/Document % 20 Preservation % 20 Policy.pdf](http://www.ntpc.co.in/sites/default/files/downloads/Document%20Preservation%20Policy.pdf)

▶ **Policy for Determining Material Subsidiaries**

<http://www.ntpc.co.in/download/policy-determining-material>

▶ **Training Policy for Directors of NTPC**

<http://www.ntpc.co.in/download/training-policy-directors-ntpc>

▶ **Community Development Policy**

<http://www.ntpc.co.in/download/initail-community-development-policy-2009>

▶ **Banning Policy**

<http://www.ntpc.co.in/en/vigilance>

▶ **Facilities to be given to Land Oustees 1980**

<http://www.ntpc.co.in/download/ntpc-policy-facilities-be-given-land-oustees-1980>

Policy Manuals Available on NTPC Intranet

- ▶ HR Manual
- ▶ Employees Handbook
- ▶ Behaviour Values-Do (s) & Don't (s)
- ▶ Energy & Efficient Management System
- ▶ CDA Rules

Policy Manuals Available in Hardcopy :

- ▶ Training Policy
- ▶ Environment Policy
- ▶ Ash Management Policy
- ▶ Quality Policy
- ▶ Vigilance Do (s) and Don't (s)
- ▶ Risk Management Manual

Governance, Ethics and Integrity



As part of its sound corporate governance practice, NTPC ensures a transparent flow of information, regarding its working by communicating in a targeted, systematic and transparent manner to maintain its corporate and brand image.

In NTPC, Corporate Governance philosophy stems from our belief that corporate governance is an integral element in improving efficiency and growth as well as enhancing investor confidence. The Company goes much beyond statutory framework to bring transparency, accountability and equity in all facets of its operations. The Corporate Governance philosophy is scripted as:

"As a good corporate citizen, the Company is committed to sound corporate practices based on conscience, openness, fairness, professionalism and accountability in building confidence of its various stakeholders in it thereby paving the way for its long term success."

Code of Conduct

The Company has in place Code of Conduct for Directors and Senior Management Personnel (CODE) in alignment with Company's Vision and Values to achieve the Mission & Objectives and aims at enhancing ethical and transparent process in managing the affairs of the Company. This CODE is applicable to all Board Members including Government Nominee(s), Independent Director(s) and Senior Management Personnel of the Company. A copy of the Code of Conduct is available at the website of the Company.

Declaration as required under Schedule V of SEBI LODR

All the members of the Board and Senior Management Personnel have affirmed compliance of the Code of Conduct for the financial year ended on March 31, 2016.

New Delhi (Gurdeep Singh)

Date : 18.05.2016 Chairman & Managing Director

Conflict of Interests

By rule, all directors of the Company have to declare their personal interests in the prescribed Disclosure of Interests form pursuant to Section 184 of the Companies Act, 2013. In compliance to the aforementioned, the Directors refrain from participating in discussions on such agenda items that include their interest in any form to any extent, directly or indirectly.

Implementation of Integrity

NTPC is committed to have total transparency to its business processes and it signed a Memorandum of Understanding with Transparency International India in December, 2008 as a step in this direction.

The Integrity Pact shall be applicable for all tenders having estimated value (excluding taxes and duties) of ₹ 10 Crore and above. Three Independent External Monitors have been nominated by the Central Vigilance Commission to oversee the implementation of Integrity Pact. Regular meetings are being organized with Independent External Monitors (IEMs).



Releasing of Preventive Vigilance Manual for NTPC

Managing Organizational Risk related to Corruption

To curtail the organizational risk in terms of corruption, NTPC has taken following measures during FY-2014 to 2016:

- The Company has a Vigilance Department headed by Chief Vigilance Officer who is a nominee of the Central Vigilance Commission. The Vigilance Deptt. consists of Four Units, namely Vigilance Investigation and Processing Cell, Departmental Proceeding Cell (DPC), MIS Cell and Technical Cell (TC). These units deal with various facets of Vigilance Mechanism. Exclusive and independent functioning of these Units ensures transparency, objectivity and quality in vigilance functioning. Vigilance Department submits its six monthly performance reports to the Board of Directors. Data for vigilance cases are given in 'Key Data at a Glance' section.
- Integrity Pact has been implemented in NTPC since 2009. Presently tenders having estimated value of ₹10 Crore (excluding taxes and duties) and above are covered under the Integrity Pact. Presently NTPC is having 02 Independent External Monitors - Sh. V.S. Jain, Ex-Member, PESB and Sh. Satyananda Mishra, IAS (Retd.) Ex. CIC to oversee the implementation of Integrity Pact Programme.
- As per the provisions of Section 619 (3) of the Companies Act, 1956, Fraud Prevention Policy has been implemented in NTPC and suspected fraud cases referred by the Nodal Officers to Vigilance Deptt. are investigated immediately to avoid/stop fraudulent behaviors as defined in "Fraud Prevention Policy".
- E-Procurement process, using SRM Module of ERP, is used to improve efficiency and to ensure transparency in the process of procurement.
- Total 100 nos. of trainings/workshops on anti-corruption measures were conducted at various locations/stations of NTPC all over India in which 2767 employees participated. This was done to ensure complete awareness and optimum participation of the entire fraternity.
- Vigilance Awareness Week was observed from October 27, 2014 to November 01, 2014 and October 26, 2015 to October 31, 2015 in NTPC, Corporate Centre,

Governance, Ethics and Integrity

Projects/Stations, Offices, Subsidiaries and Joint Venture Companies of NTPC sites and Inspection Offices, pursuant to the directive of the Central Vigilance Commission contained in Circular No.014/VGL/048/202018 dated 30.09.2014. Focus was on "Combating Corruption-Technology as an enabler" as per directives of the Central Vigilance Commission. Besides these, as advised by the Vigilance Commission, NTPC also conducted outreach activities during Vigilance Awareness Week in total 405 Colleges/Schools/ Institutions all over the country, organizing elocutions, debates, lectures etc on ethics, integrity and corruption and its ill effects for students.

- Project Vigilance Executives and the Technical Cell together conduct regular preventive checks at the Corporate Centre.
- To have a close monitoring of the heavy expenditure, Quarterly Progress Reports (QPRs) are collected from all departments where the value of contracts is exceeding a predetermined threshold value.
- Whistle blower policy is also in force along with Complaint handling policy & the policy for Banning of Business dealings, to ensure strict anti-corruption environment. Whistle Blower Policy has been approved by NTPC Board of Directors on 27th November, 2013 to build and strengthen a culture of transparency and trust in the organization and to provide employees with a

framework/procedure for responsible and secure reporting of improper activities (whistle blowing) within the company and to protect employees wishing to raise a concern about improper activity/serious irregularities within the Company.

During FY 2015:

- Total 188 new complaints were received. 102 complaints (including 40 complaints previously received) were closed after verification. 95 complaints (including 11 complaints previously received) were taken up for investigation and 40 were under verification as on 31.03.2015.
- 84 investigations were finalized recommending initiation of major penalty proceedings against 09 employees, initiation of minor penalty proceedings against 48 employees and administrative action against 109 employees.



Shri TM Bhasin, Commissioner, CVC interacting with Team NTPC

- During the period, 02 such instances were observed wherein major penalty proceedings action was taken and services of 02 officials were terminated by imposing the penalty of "Compulsory Retirement" & "Removal from Service" respectively.
- Total 41 nos. of trainings/workshops on anti-corruption measures were conducted at various locations/stations of NTPC all over India in which 1230 executives participated.

During FY- 2016:

- Total 154 new complaints were received. 67 complaints (including 29 complaints previously received) were closed after verification. 86 complaints (including 11 complaints previously received) were taken up for investigation and 40 were under verification as on 31.03.2016.
- 93 investigations were finalized recommending initiation of major penalty proceedings against 07 employees, initiation of minor penalty proceedings against 19 employees and administrative action against 109 employees.
- During the period, 02 such instances were observed wherein major penalty proceedings action was taken and services of 02 officials were terminated by imposing the penalty of "Compulsory Retirement".
- Total 51 nos. of trainings/workshops on anti-corruption measures were conducted at various locations/stations of NTPC all over India in which 1371 executives participated.

Board of Directors

NTPC is a Government Company within the meaning of Section 2 (45) of the Companies Act, 2013 as the President of India presently holds 74.96% (FY-2015) and 69.96% (FY-2016) of the total paid-up share capital. In terms of the Articles of Association of the Company, the strength of our Board shall not be less than four Directors or more than twenty Directors. These Directors may be either whole-time Directors or part-time Directors.

SEBI LODR stipulate that the Board of Directors of the company shall have an optimum combination of executive and non-executive directors with at least one woman director and not less than fifty percent of the Board of Directors comprising non-executive directors.

The chair of the highest governance body is an executive officer in the organization. The appointment of Functional Directors, Government Nominated Part Time Directors as well as Independent Directors on the Board of NTPC are made by Government of India based upon their experience and sectorial expertise through Cabinet Committee of Appointment on the recommendation from PESB/DPE. Further, Board of Directors nominates Board Members for its various committees.

The composition of the Board is as under:

- Seven Functional Directors including the Chairman & Managing Director,
- Two Government Nominee Directors and
- Nine Independent Directors as per the requirement of the SEBI LODR.

The Ministry of Corporate Affairs, through notification dated 05.06.2015, has exempted the Govt. companies from the provision of performance evaluation of Director under section 178 of company act 2013 as same is done by Administrative Ministry.

The CMD is the highest authority that formally reviews and approves the organization's Sustainability Report of NTPC after coverage of all material aspects by the concerned departments.

Process for communicating Critical concerns to the highest governance body are being monitored by Committee for Risk Management. There were two such meetings in the last Financial year where critical concerns and mechanism to mitigate such concerns were discussed. Minutes of meeting of Risk Management Committee were also put up to the Board.

Remuneration policies for the highest governance body and senior executives are fixed as per guidelines issued by DPE on the terms and conditions as fixed by the Government of India. No remuneration consultants are involved for determining remuneration as the same is fixed by Government of India.

As on 31st March 2016, the Board comprised eleven Directors out of which six were whole-time Directors (Executive Directors) including the Chairman & Managing Director. Two Directors were nominees of the Government of India. The Board had three Independent Directors who were appointed by the Government of India through a Search Committee constituted for the purpose. All the Directors bring to the Board a wide range of experience and skills.

A table showing requirements of woman director and independent directors as per the SEBI LODR and the Companies Act, 2013 and actual position of these directors on the Board of the Company during the financial year 2015-

16 is as under:

Period	Requirements per the SEBILODR	Requirements per the Companies Act, 2013	Actual
01.04.2015 - 20.08.2015	9*	4*	2
21.08.2015 - 22.08.2015	8*	4*	2
23.08.2015 - 31.08.2015	8*	3*	1
01.09.2015 - 17.11.2015	7*	3*	1
18.11.2015 - 08.12.2015	7*	4*	3*
09.12.2015 - 03.02.2016	6*	3*	3*
04.02.2016 - 24.02.2016	7*	4*	3*
25.02.2016 - 31.03.2016	8*	4*	3*
*including one woman director			

There was no woman director on the Board from 01.04.2015 to 17.11.2015 and there were insufficient numbers of independent directors during the financial year 2015-16 as per SEBI LODR. Further, in terms of Companies Act, 2013, sufficient numbers of independent directors were only there for the period from 09.12.2015 to 03.02.2016.

Being a Government Company, the power to appoint the Directors on the Board vests with the President of India, accordingly, the Company is, from time to time, requesting Ministry of Power to appoint requisite number of independent directors on the Board.

Board Sub-committees

The Board has complete access to any information within the company to be able to take informed and meaningful decision, exercise control over the organisation as well as to review the progress of implementation of strategic decisions and corporate plan formulated by the board. The board has established 14 committees.

The Board of Directors has constituted the following committees:

- (i) Audit Committee.
- (ii) Nomination and Remuneration Committee.



CMD, NTPC briefing Shri Piyush Goyal, Minister of State with Independent Charge for Power, Coal, New and Renewable Energy and Mines on NTPC power capacity and future plans

- (iii) Remuneration Committee for PRP
- (iv) Stakeholders' Relationship Committee.
- (v) Corporate Social Responsibility and Sustainability Development Committee.
- (vi) Contracts Sub-Committee.
- (vii) Projects Sub-Committee.
- (viii) Committee of Functional Directors for Contracts.
- (ix) Committee on Management Controls.
- (x) Committee on Exchange Risk Management.
- (xi) Committee for Review of Coal Mining Activities.
- (xii) Investment/ Contribution Sub-Committee.
- (xiii) Committee for Vigilance Matters.
- (xiv) Committee for Risk Management.

The terms of reference on these committees and details of the members have been given in NTPC's Annual Report for FY-2016.

Sustainability and Corporate Social Responsibility

NTPC has been following the top-down approach in Corporate Social Responsibility (CSR) and Sustainability governance. For this, it has put in place a Sustainability Policy that acts as a fundamental building block for propagating responsible behavior among its employees and other stakeholders.

The company has a board level sub-committee for CSR & sustainability, which consists of two independent Directors, two financial Directors & one Govt. nominated director headed by CMD. All policy matter related to Social, Economic and Environmental issues are discussed and approved for execution. Moreover, impact assessment of activities is being carried out twice a year in various stations of NTPC.

The company has formulated NTPC policy for CSR & Sustainability as per the requirement of the Section 135 of the Companies Act, 2013. This committee formulates and recommends to the Board CSR and Sustainable Development plan from time to time and meeting is held as per budget proposals allocation requirement at the time of monthly board meeting. As on 31st March 2016, the committee comprises of the following members:

Directors responsible for implementation of policies & systems during FY-2014 to 2016 on sustainable development and business responsibility aspects are:

Chairman & Managing Director	Chairman
Director (HR)	Member
Director (Finance)	Member
Government Nominee (<i>Dr. Pradeep Kumar</i>)	Member
Independent Director (<i>Shri Prashant Mehta</i>)	Member

The composition of the highest governance body and its committee has been provided in table below :

No.	Policies/ systems	Director (s) Responsible
1.	<ul style="list-style-type: none"> • Code of Conduct for Board Members and Senior Management Personnel. • Core Value 	All Directors
2.	All Financial systems	Director (Finance)
3.	<ul style="list-style-type: none"> • Safety Policy • Energy Efficiency • Ash Utilization Policy 	Director (Operations)
4.	<ul style="list-style-type: none"> • Environment Policy • New Technologies and Renewable Energy 	Director (Technical)
5.	<ul style="list-style-type: none"> • Human Resource (HR) Policies. • R&R Policy • CSR & Sustainable Development (SD) Policy • Community Development (CD) Policy • Transfer Policy 	Director (HR)
6.	<ul style="list-style-type: none"> • Commercial Systems and Procedures 	Director (Commercial)
7.	<ul style="list-style-type: none"> • Fraud Prevention Policy • Whistle Blower Policy • Complaint Handling Policy • Banning Policy 	Chief Vigilance Officer

Corporate Membership

NTPC is a member of TERI-BCSD (Business Council for Sustainable Development), which is the Indian partner of the WBCSD (World Business Council for Sustainable Development), Geneva. NTPC is also a member of CII, a non-government, not for profit, industry led and industry-managed organization, seeking to play a proactive role in India's development process. These forums provide NTPC an independent and credible platform to address issues related to sustainable development and promote leadership in environmental management, social responsibility and economic performance.

The Company has taken Corporate Membership of 51 Chambers & association including SCOPE, FICCI, CII, TERI, ITRHD, WEC, SHRM, IIPPE, IERE, IFGE, NACE, ICSI, ICAI etc. The list of such organizations is present in the "Key Data at a Glance" section.

Power Sector Scenario, Opportunities and Challenges



India's Power Sector Scenario

Power Sector is a key enabler for India's economic growth. The sector consists of generation, transmission and distribution utilities and is a crucial component of India's infrastructure. The achievements and developments along with various issues in various segments of the Industry are:

- ▶ Gross annual generation of the country was 1107.82 BUs as compared to 1048.67 BUs in the previous year, a growth of 5.64%.
- ▶ Generation capacity of 23976.60 MW (excluding renewable) added during the year surpassing 22566.31 MW added in the previous year.
- ▶ 28114 Ckms of transmission lines added during the year as compared to 22101 Ckms in the previous year.
- ▶ 62849 MVA of transformation capacity added during the year as against 65554 MVA in the previous year.
- ▶ Marginal decline in PLF of thermal stations from 64.25% in financial year 2014-15 to 62.29% in the FY - 2016.
- ▶ Peak power deficit and energy deficit was 3.2% and 2.1% respectively as against 4.7% and 3.6% during FY - 2015.

The chain of Industry structure and performance is as strong as its weakest link, the same is true for the power value chain, and each link has to keep pace with the other to achieve a sustainable performance in future. Here are some updates on the developments, achievements and issues in various segments of the industry in India:

Capacity and Generation

The total installed capacity in the country as on March 31, 2016 was ~302088 MW (including renewable), with private sector contributing 41% of the installed capacity followed by State Sector with 34% share and Central Sector with 25% share.

During the FY-2016 capacity of 23976.60 MW (excluding renewable) was added where as in FY - 2015 capacity of 26464 MW (including renewable) was added. With this the total capacity addition during the four years of XII plan period is 84990.72 MW (excluding renewable) which is about 96% of the planned capacity of 88537 MW for the XII Plan.

Ownership	Total Capacity (MW)	% share
State	101790.18	34
Centre	76296.75	25
Private	124000.91	41
Total*	302087.84	100.00

Source: Central Electricity Authority-Installed Capacity Report

Sector	PLF2014-15	PLF 2015-16
State	59.85	55.41
Central	74.20	72.52
Private	59.33	60.59
All India	64.25	62.29

Existing Generation

The total power available in the country during the financial year 2015-16 was 1107.82 billion units as compared to 1048.67 billion units during last year, registering a growth of 5.64%. (Generation figures pertain to monitored capacity by CEA)

Sector-wise and fuel-wise break-up of generation (BUs) for the year 2015-16 is detailed as under:

Sector	Thermal		Hydro		Nuclear		Bhutan		Total	
	2014-15	2015-16	2014-15	2015-16	2014-15	2015-16	2014-15	2015-16	2014-15	2015-16
Central	308.05	315.25	50.96	56.68	36.10	37.41	-	-	395.11	409.34
State	299.26	291.83	67.54	53.16	-	-	-	-	366.80	345.00
Pvt/IPP	271.01	336.71	10.74	11.53	-	-	-	-	281.75	348.24
Bhutan Import	-	-	-	-	-	-	5.01	5.24	5.01	5.24
Total	878.32	943.79	129.24	121.38	36.10	37.41	5.01	5.24	1048.67	1107.82

(Source: Central Electricity Authority)

As far as Thermal generation is concerned, based on the monitored capacity by CEA, the generation contribution of central sector is 33.40% with installed capacity share of 27.95%, state sector contributes 30.92% of generation with installed capacity share of 34.06% and private sector contributes 35.67% of generation with installed capacity share of 37.98%. Central Sector utilities have better performing stations as compared to those of State utilities and Private Sector.

Power Consumption

In terms of per capita power consumption, India ranks among the lowest in the world. The per capita consumption of power in India is just 1075 units in financial year 2015-16 (provisional). (Source: Central Electricity Authority).

Major end users of power can be broadly classified into industrial, agricultural, domestic and commercial consumers. These consumers represented approximately 44%, 18%, 23% and 8% respectively of power consumption

Capacity Utilization and Generation

Capacity utilisation in the Indian power sector is measured by Plant Load Factor (PLF).

Sector wise Generation and PLF (Thermal)

The overall decline in PLF was mainly due to backing down/ shut down of units on account of low schedule from beneficiary states (Source: Central Electricity Authority). The outlook of generation looks promising, expecting increase in industrial production and Government of India's mission to provide 24x7 electricity to all.

measured by units of electricity consumed in the year 2014-15 (provisional). Traction & Railways and others represented about 7% of power consumption. The electricity consumption in Industry sector and commercial sector has increased at a much faster pace compared to other sectors during 2005-06 to 2014-15 with CAGR of 10.69% and 8.10% respectively (Source: Ministry of Statistics and Programme Implementation- Energy Statistics 2016).

Transmission

The transmission network (at voltages of 220 kV and above) in the country has grown at an average rate of 8% p.a. till now in the XII Plan and is in line to achieve the target for the plan period. Inter-regional transmission capacity has more than doubled in last four years from 27750 MW as at the end of XI plan to 58050 MW as on 31.03.2016. The augmentation of the national grid will help promote competition and enable merit order dispatch of generation leading to lower cost of power for consumers.

The AC substation transformation capacity has also

Power Sector Scenario, Opportunities & Challenges

expanded at a great pace which has increased from 399801 MVA at the end of XI plan to 643949 MVA as on 31.03.2016, while HVDC substation capacity has increased to 15000 MW as on 31.03.2016 from 9750 MW as at end of XI plan. (Source: Central Electricity Authority)

Over the next few years, the demand for transmission capacity is expected to increase significantly driven primarily by rising trend in power generation capacity, reforms in fuel sector and large scale integration of renewable energy.

Initiatives to strengthen the Transmission system include:

- Implementation of High Capacity Corridors and HVDC lines
- Green Energy Corridors to take care of ambitious renewal capacity addition.

Additionally, National Smart Grid Mission will enhance efficiency in power supply network and facilitate reduction in losses and outages.

Distribution

The electricity business is not merely about setting up power generation stations and transmission systems, but equally, and probably more crucially, about retailing electricity and recovering the cost of service from consumers.

The average tariff has increased in the past few years, but the rise has not been commensurate with the increase in the cost of supply. The consistent revenue gap, coupled with high AT&C losses have piled up huge losses for the state utilities.

In 2015-16, the tariff hikes have been modest and average

increase is about 4%. Some of the SERC's did not approve any tariff revision for their distribution utilities, while one SERC has lowered the tariff by 5.7%.

To improve the distribution segment's performance, Government of India launched the most comprehensive power sector reform scheme ever i.e Ujjwal Discom Assurance Yojana to turnaround Discoms (UDAY). UDAY coupled with other schemes such as Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY) for rural India, Integrated Power Development Scheme (IPDS) are expected to turnaround the Distribution Sector.

DDUGJY for rural India entails:

- Separation of agricultural and non-agricultural feeders.
- New transformers and up-gradation of last mile infrastructure.

IPDS for urban areas entails:

- Smart metering for large consumers and tamper proof meters at homes.
- Comprehensive sub-transmission and distribution infrastructure up-gradation.
- Underground cabling and high tech gas insulated sub-station transformers in densely populated areas.

Electricity Act is being amended to give consumers a choice to choose and change power service provider like a mobile connection. Competition will lead to lower tariffs and better service.



800 MW Koldam Hydro Project



800 MW Koldam Hydro Project dedicated to the Nation by our Hon'ble Prime Minister

Power Trading

In the year 2015-16, around 89% of power generated in the Country was transacted through the long term Power Purchase Agreements route. 11% of the power was transacted through trading mechanism which included trading through short term licensees, bi-lateral trading, trading through power exchanges and through Deviation Settlement Mechanism. (Source: Central Electricity Regulatory Commission).

Energizing the Power Sector – Key Initiatives and Reforms

The last 15 months has been the period of many positive developments in the Indian Power Sector and is now poised for leap frog growth in the coming years.

In Indian Power Sector, the weakest link has been the Distribution segment marred by huge financial losses due to high transmission and distribution losses, huge gap between cost and revenue and poor revenue realization. However, for healthy growth of the entire sector, Government of India has taken several initiatives which are briefly discussed below:

(A) Ujwal Discom Assurance Yojana (UDAY)

DISCOMs in the country have accumulated losses of approximately ₹ 3.8 lakh crore and outstanding debt of approximately ₹ 4.3 lakh crore (as on March, 2015). To facilitate the revival of the DISCOMs which have been struggling with losses and mounting debt, UDAY, the most comprehensive power sector reform scheme ever, was launched by the Central Government in November, 2015.

Key features of the scheme are as follows:

- States shall take over 75% of DISCOM debt as on 30 September 2015 over two years - 50% in 2015-16 and 25% in 2016-17.
- States will issue bonds in the market or directly to the respective banks / Financial Institutions (FIs) holding the DISCOM debt to the appropriate extent.
- DISCOM debt not taken over by the State shall be converted by the Banks / FIs into loans or bonds with interest rate not more than the bank's base rate plus 0.1%.
- Alternately, this debt may be fully or partly issued by the DISCOM as State guaranteed DISCOM bonds at the

prevailing market rates which shall be equal to or less than bank base rate plus 0.1%. States shall take over the future losses of DISCOMs in a graded manner and shall fund them.

UDAY provides an opportunity to discoms to break-even in next couple of years through reduction in interest burden, cost of power, cutting down on AT&C losses and enhanced operational efficiency. UDAY has potential saving of ₹1,80,700 crore by 2018-19 through efficiency improvements. Within few months of launch of Scheme, 18 states and 1 union territory have agreed to participate in the Scheme, covering about 90% of the total discom debt.

So far, 14 states have already signed MoUs with Ministry of Power for implementing the scheme and Bonds of over ₹1 lakh crore have been issued. Discoms would benefit from improvement in their credit ratings as a result of financial and operational efficiencies and would help in raising cheaper funds for future capital investments.

(B) Revised Tariff Policy

In January, 2016 tariff policy 2006 was amended with comprehensive changes to align it with the current state of the power sector. The amendments aimed at achieving the objectives of Ujwal DISCOM Assurance Yojana (UDAY) with the focus on 4 E's: electricity for all, efficiency to ensure affordable tariffs, environment for sustainable future and ease of doing business to attract investments.

To meet the government's objective of 24x7 power for all, it envisages setting up micro grids in rural areas where grid supply is unfeasible as well as setting-up small washery reject based plants nearby to make power affordable. On the efficiency front, the focus is on power affordability for which policy allows 100% expansion of existing power projects to reduce tariffs as green field projects have higher costs. Policy also provides for sale of un-requisitioned power with benefit sharing allowing for reduction in overall cost.

With focus on augmenting renewable energy capacity and to promote sustainable practices, a number of initiatives such as renewable purchase obligation and renewable generation obligations have been envisaged.

Another focus area of Revised Tariff Policy is ancillary services; the central commission has been given the power to introduce norms for ancillary services necessary for maintaining power quality, reliability and security of the grid, including the method of sharing charges.

The policy also lays stress on improving business environment and investments in coal rich states being encouraged to create employment opportunities. Further, States will be allowed to set up plants with upto 35% of power procured by discoms on regulated tariff.

(C) Atomic Energy (Amendment) Act, 2015

The Parliament passed the bill in December, 2015 paving the way for participation of PSU's in setting-up of Nuclear Power

Plants which was so far limited to NPCIL and BHAVINI under the administrative control of Department of Atomic Energy. It has expanded the definition of Government Company to include Companies where the entire paid-up share capital is held by one or more Government Companies. Further, to allow participation of PSU's, amendment allows the central government to issue licenses for JV companies to set up nuclear power plants.

(D) Fuel Reforms

Historically, availability of fossil fuel particularly coal, has been the cause of serious concern for thermal power generators. However, the last 15 months has proved to be quite dynamic with slew of measures taken by Central Government which inter-alia include coal mining reforms which focused on two key aspects- competitive auctions of coal mines and commercial mining. Competitive auction of coal mines would result in transfer of economic benefits to end consumers in the form of lower tariffs.

In February, 2016, Ministry of Coal circulated policy guidelines for grant of "Bridge Linkage" to specified end-use plants of Central and State Public Sector Undertakings both for power as well as non-power sector which have been allotted Schedule-III coal mines under the Coal Mines (Special Provisions) Act, 2015 (CM(SP) Act) and coal blocks allotted under the Mines and Minerals (Development and Regulation Act), 1957 (MMDR Act) for a period of 3 years from the date of allotment of coal mine/block. In May, 2016 bridge linkages were granted to 19 thermal power stations including 7 NTPC plants with a capacity of 12200 MW. This short term linkage will help the power generators to bridge the gap between requirement of coal and the start of production from the link allotted coal mine/block.

In May, 2016 a new policy for coal linkage allocation to increase flexibility in the utilization of domestic coal linkages was approved by the Cabinet. Under the framework, all long term linkages of individual state generating stations/central generating stations would be clubbed and assigned to the respective state(s)/ company owning the generation stations. Subsequent allotment of coal would be based on plant efficiency, coal transportation cost, transmission charges and overall cost of power.

The Ministry of Coal has finalized the **guidelines for the automatic coal linkage transfer policy** to enable seamless transfer of fuel from old thermal power stations that have been scrapped, to new super critical plants to enhance generation capacity, ensure lower emissions and optimize land as well as water usage. This is of great significance as over 36,000 MW capacity is more than 25 years old and needs to be replaced in phased manner. The policy has been further modified on 09.06.2016 which allows for automatic transfer of coal linkage from a scrapped unit to a new unit outside the state for Thermal Power Plants in the Central sector i.e. Central Gencos.

Based on the Inter-Ministerial Task Force (IMTF)

recommendation, Government of India has also allowed swapping of coal to optimize distances and maximizing despatches of coal. This will help reducing the cost of power as well as de-congest railway network.

Recently, CSIR-Centre Institute of Mining and Fuel Research (CSIR-CIMFR) signed a Memorandum of Understanding with Coal Supplying companies and Power Utilities for quality analysis of coal being supplied to power utilities by coal companies. CSIR-CIMFR would make use of its knowledge based support in maintaining the quality of coal at national level for the entire power sector. It is estimated that **about 300 million metric tons of coal samples would be analyzed for quality per year**. It is also expected that this project will result in improvement in performance of power plants besides leveraging benefits to the consumer in particular and society as a whole. The endeavour would help the nation in sustainable energy supply and security planning for future, as it may reduce import of thermal coal.

On the gas front, **Government introduced a scheme for gas-based power projects, applicable for 2015-16 and 2016-17 for reviving the gas based capacity**, as many of the gas-based power were stranded or operating at sub-optimal levels due to non-availability of gas. The scheme envisages sacrifices to be made by all stakeholders as well as support from Power System Development Fund. The scheme resulted in revival of 11,717 MW of stranded gas based power projects with supply of Re-gasified Liquefied Natural Gas through transparent e-auction.

(E) Demand Side Management

Based on encouraging results of Cycle 1 of Perform Achieve and Trade mechanism, Cycle 2 for the period 2016-17 to 2018-19 has been further broadened with inclusion of more

units from the existing sectors and addition of units from 3 new sectors i.e refineries, railways and electricity discoms. The designated customers selected in Cycle 2 account for 50% share in total energy consumption based on 2009-10 levels.

Government identified lighting as key focus area for energy efficiency. Under the Unnat Jyoti by Affordable LEDs for All (UJALA), more than 11 crore LED Bulbs has been distributed which resulted in cost saving of ₹16.24 crore per day and over 4 crore KWh per day and at the same time helped in reduction of CO₂ to the extent of 32,877 tonne per day, thereby reiterating India's commitment made at Conference of Parties (COP) 21 Summit held in Paris to reduce its energy intensity.

Opportunities and Challenges

Opportunities

The number of initiatives and reforms undertaken by Government of India has opened door of opportunities across the power sector value chain and are briefly discussed below:

Hydro power Potential

At present, most of the hydro power potential – 145 GW is untapped due to major deterrent i.e environmental impact of HEPPs and bottlenecks in the execution of hydro projects such as lack of basic infrastructure such as roads and bridges, inadequate grid connectivity, higher capital cost, resettlement and rehabilitation, geology and long gestation period.

To overcome these hurdles, amendment to Tariff Policy has provided for exemption from competitive bidding till 2022, allowing distribution licensees to extend long term PPAs



NTPC Faridabad Gas Power Station

beyond 35 years by a further period of 15 years. Further exclusion of Hydro Power from RPO and allowing flexibility to developers in depreciation rate etc. will benefit the Discoms/consumers. All these measures expect to recharge hydroelectric power.

Nuclear Power

The amendment to Atomic Energy Act, 2015 has paved the way for Public Sector Joint Ventures to participate in Nuclear Generation which so far was a restricted domain. This will help companies like NTPC Limited which had already formed a joint venture company with Nuclear Power Corporation of India limited to foray into nuclear power generation. This development coupled with many international agreements for fuel/technology procurement, steps to resolve liability issues through formation of insurance pool and Governments' focus on clean energy makes nuclear power an attractive option.

Renewable Energy

Apart from policy initiatives for the renewable sector, several measures in the solar power sector such as solar park policy, grid-connected rooftop solar plants and sharp decline in solar PV cell cost has made the investment in solar power business highly attractive.

On the wind power front, National Institute of Wind Energy under MNRE has estimated the country's wind energy potential at 100 meters above ground level to be of 302 GW. The Government envisages setting-up of 60 GW of wind power by 2022 augurs well for wind power developers. (Source: National Institute of Wind Energy, MNRE)

Transmission Sector

With significant growth in new transmission lines with significant contribution from Private Sector, an increase in pace of identifying and awarding interstate projects through tariff based competitive bidding, focus on smart grids, green energy corridors (GEC) to cater to renewable and micro grids for connecting rural areas /providing energy access to un-electrified areas has opened avenues for various players in the transmission sector which would require massive investment in coming years.

Challenges/concerns

Inspite of tremendous progress made by the power sector in last few years, certain key concerns can potentially impact the sector. Some of the issues are briefly discussed below:

Environmental Concerns

The environmental concerns, particularly relating to coal based thermal stations has emerged as a major issue. In December, 2015, Ministry of Environment, Forest and

Climate change notified the new standards for Thermal Power Stations relating to water consumption, particulate matter, SOx, NOx and mercury. Notification deals with 3 categories – plants installed before 31.12.2003, after 2003 upto 31.12.2016 and beyond 01.01.2017. The Thermal plants have to achieve the standards within 2 years from the date of publication of notice.

Although, it is a step in right direction for controlling pollution generated by Thermal Plants, however, keeping in view tight time lines and several constraints like non-availability of space in older plants and indigenous technology to handle poor quality of Coal, it may be extremely challenging to meet the revised standards. Further, implementation of new technology to take care of revised standards will increase the tariff considerably which is estimated to be – 50 paise per kWh.

Availability of Gas

Inspite of Govt's effort to revive beleaguered gas-based power plants through e-auction based allocation of imported RLNG which provided a subsidy from the Power System Development Fund as well as sacrifices made by all stakeholders, the future of gas based power projects looks gloomy for want of adequate gas supply. The PLFs continue to remain low. The power sector has been struggling to recover costs from capital investment in gas-based capacity. To make gas-based power projects viable, long-term solutions need to be found.

Rural Electrification-Last Mile Connectivity

Rural electrification has been one of the key focus areas of the current Government. Central Government aims to provide electricity to all house-holds by 2019 through its flagship programme Deendayal Upadhyaya Gramin Jyoti Yojana (DDUGJY). Though only – 9,000 villages are yet to be electrified, however electricity is still to reach all homes. Presently, – 65% of the house-holds have electricity. However, last mile connectivity, quality, reliability and duration of supply remain the concern.

Integrating Renewable Generation

With massive renewable capacity planned to be added by 2022, integration of renewable generation with the grid poses a big challenge. The delays in acquisition of right of way, poor financial health of state utilities and other challenges of accommodating huge quantum of intermittent renewable energy can impede the progress.

Other Issues/Concerns

- Availability of land/ Right to use of land/Right of way on land.
- Availability of water.
- Environment and forest clearance at State level to expedite E & F clearance to the project.
- Logistics for movement of heavy machinery like roads and bridges.
- Human resource requirement, commensurate with the requirement of the various skilled and unskilled jobs.

- Burden on states: The gap between Average Revenue Realized (ARR) & Average Cost of Supply (ACS) needs to be reduced.
- Impact on conventional power capacity: Increasing share of Renewables is not only going to reduce PLF of conventional power plants, but also force to regulate generation to compensate for intra-day variation in power generation by RE sources.
- Grid integration issues: The integration of Renewable power into power systems results in 'integration costs' for grid which includes cost for balancing services, more flexible operation of thermal plant, reduced utilization of transmission network.

Outlook and opportunities for the company

Strategic focus of the company

NTPC is market leader in power generation and has its presence in the entire power sector value chain which gives it a competitive edge in the market. NTPC continues to focus on scaling up generating capacity through a mix of conventional and non-conventional fuel sources, efficiently running its installed capacity, developing own coal mines and providing other value adding services like power trading, consultancy etc.

The key is not to add capacity alone, but to see that the capacity which has been added is financially viable and also

does not become stranded as has been the case with many IPP's. As a policy, the Board of Directors of NTPC accord investment approval only after having 5 basic requirements in place viz. land, water, environment clearance, fuel supply arrangements and power purchase agreement(s) (PPAs).

In-organic growth opportunities

NTPC also scouts for acquisition of power plants at attractive valuations for adding capacity after analysing the technical and financial viability of the project(s). Considering a lot of capacity of private/state developers is stranded there is a good scope for consolidation in the sector. Recently, NTPC formed a Joint Venture Company with Jharkhand Biji Vitran Nigam Limited (JBVNL) to acquire, establish, operate, maintain, revive, refurbish, renovate and modernize the performing existing units and further expand capacity of Patratu Thermal Power Station, District Ramgarh, Jharkhand in two phases i.e. Phase-I (3x800 MW) and Phase-II (2x800MW).

Government of Jharkhand issued the Notification dated 1st April 2016 for transfer of assets of Patratu Thermal Power Station to Patratu Vidyut Utpadan Nigam Limited, resulting in addition of 325 MW to NTPC's Group capacity.

Fuel Security

Govt has laid a lot of emphasis on improving coal supplies over the next five years; accordingly, the Company expects to receive better coal supplies under its long term coal supply agreements. Coupled with its captive coal mines,



NTPC Singrauli Flagship Power Station: Night View

NTPC strives to ensure long term fuel security. With increased supplies of domestic coal, reliance on imported coal has also come-down thereby contributing to reduction in cost of power.

NTPC has been allocated 10 coal blocks with estimated geological reserves of ~7 billion tonnes with estimated mining capacity of 107 million tonnes per annum. NTPC has opened Pakri-Barwadih coal mining project from Western Pit and expects to extract coal shortly. Appointment of Mine Developer cum operator is under process for three other mines. Other mines are under various stages of development.

NTPC led the coal rationalisation initiative of Govt to reduce transport costs and avoid criss-cross movement of coal to de-congest the railway network.

Renewable Energy

In line with Govt's mission of achieving renewable capacity of 175 GW by 2022 and being partner in progress of nation, NTPC is focussed on adding renewable energy to its portfolio even though generation capacity based on fossil fuel remains the mainstay of the Company's power portfolio. NTPC is committed to add 10 GW of own renewable power capacity, select solar power developers for 15 GW under National Solar Mission and also involved in bundling of solar power with conventional power from its older plants to reduce the cost of renewable power. NTPC takes cognisance of the challenges of adding renewable energy capacity in India and will add such capacity progressively. Further to provide impetus to green energy, Govt allotted tax free bonds of ₹ 5,000 crore to various CPSE's. NTPC was one of the beneficiaries of allotment of tax-free bonds which will go a long-way in reducing the cost of renewable power.

Off-take and realisation

There have been concerns about the huge capacity addition programme undertaken by NTPC due to weak off-take and current energy and peak deficit numbers. NTPC firmly believes that the ground reality is going to be different as structural reforms put in place in the distribution segment through UDAY will show results in coming years and with improved financial health of the discoms and the economic growth of the country the demand will pick-up.

Almost, the entire output of the NTPC's power stations has been contracted under long term PPAs. Further, NTPC produces power at a very competitive cost. The average tariff for financial year 2015-16 was ₹ 3.18/kWh as against ₹ 3.28/kWh for the previous year. Low cost of power mitigates off-take risks. NTPC has, for the 13th consecutive year realised 100% of its dues and is confident of maintaining its track record in future also.

Leveraging on strengths for delivering better future performance

NTPC derives competitive edge from its strengths and is confident of meeting future challenges in the sector.

a. Project Management

NTPC has adopted an integrated system for the planning, scheduling, monitoring and controlling of approved projects under implementation. To coordinate and synchronise all the support functions of project management, it relies on a three-tiered project management system known as the Integrated Project Management Control System which integrates its engineering management, contract management and construction management control centres.

NTPC has successfully effected standardization, bulk ordering of 660 MW and 800 MW units and Engineering Procurement and Construction (EPC) contracting to reduce engineering time and thereby reducing project execution time.

NTPC commissioned a 500 MW unit at Vindhyaachal before the schedule time, thereby entitling it to earn additional return of 0.5% on equity deployed in the unit.

b. Operational Efficiency

The operating performance of NTPC has been considerably above the national average. During the financial year 2015-16 PLF of coal stations was 78.61% against all India PLF of 62.29%. Over the years, NTPC has consistently operated at much higher operating efficiency as compared to All India operating performance.

In order to achieve cost-competitive, environment friendly, efficient & reliable power generation, the company has adopted following strategies: -

- Advance alert/support to stations through remote (Special Analytics & Computational services center) analysis of critical operation parameters, which in turn improves system reliability, reduction of outages & maintenance costs.
- Reduction of forced outages through knowledge based unit overhaul & maintenance practices.
- Optimizing planned outage period through implementation of overhaul preparedness index, ensuring all quality checks and time bound monitoring of each activity.
- To implement best practices at enterprise level, knowledge teams for each equipment has been created.
- Improvement in Heat Rate & Auxiliary Power Consumption achieved by parametric optimization at part loads by operation of units in sliding pressure mode & optimizing excess air.
- To minimize efficiency losses in stations, process interface (PI) system based applications for real time efficiency & loss calculations.
- Structured & regular energy audit helps to identify potential areas of improvement in APC reduction which are being addressed in planned time bound implementation schedule.



An Aerial view of NTPC Sipat

- Implementation of Energy Efficiency Management System (EEMS) consisting of periodic assessments, field tests, performance gap analysis deviations and updation of action plans at all stations.
- To reduce cost of thermal generation, steps have been taken to maximize use of domestic coal, swapping of coal sources to reduce transport cost & proper blending.
- Use of comprehensive Performance Evaluation Matrix for relative evaluation of the performance of various power plants over a set of comprehensive performance indicators to create an environment of in-house challenge and competition. The parameters are reviewed annually to include new set of parameters commensurate with market dynamics and development of power sector.
- Adopting advanced technologies in new units e.g. commissioning of super critical units, which improves system efficiency & reduces carbon foot print.
- Renovation & modernization for reduction of greenhouse

gas emissions, effective modernized control systems for environment friendly economic generation.

c. Human Resources

NTPC has been conferred with various HR awards over the years by reputed institutions. NTPC is deeply passionate about ensuring the holistic development of all its employees as distinct individuals and good citizens. Competence building, Commitment building, Culture building and Systems building are the four pillars on which HR systems of NTPC are based. NTPC has a highly talented team of committed professionals and has been able to induct, develop and retain the best talent. The commitment of the employees is also reflected in terms of financial parameters such as sales/employee, PAT/per employee, value added/per employee etc. We have a pool of ~23,000 employees creating value for the Company. NTPC has a very low executive attrition rate.

d. Sound Corporate Governance

NTPC's corporate governance practices have been recognised and awarded at several forums. It enjoys the confidence of investors and all other stakeholders alike. NTPC not only believes in adopting best practices but also includes public interest in its corporate priorities and has developed extensive social outreach programmes.

e. Robust financials and systems

NTPC has strong financial systems in place. It believes in prudent management of its financial resources and strives to reduce the cost of capital. NTPC enjoys highest credit-rating assigned by CRISIL, ICRA and CARE. The foreign ratings by Fitch and S&P are at par with sovereign ratings. It has robust financials leading to strong cash flows which are being progressively deployed in generating assets. NTPC has a strong balance sheet coupled with low gearing and healthy coverage ratios. As a result, NTPC has been able to raise resources for its capital expansion projects at very competitive interest rates.

Risk, Concerns and their Management

NTPC has an elaborate Enterprise Risk Management framework in place. A Functional Director level Committee called Risk Management Committee (RMC) has been constituted. The RMC is responsible to identify & review the risks and to formulate action plans and strategies to mitigate risks on short term as well as long term basis.

The ERM has identified 26 risks and out of which 8 have been classified as the top risks for the company:

- Inadequate fuel supply
- Difficulties in acquisition of land
- Delay in execution of projects
- Risks related to coal mining
- Risks pertaining to Hydro Projects
- Compliance of emission, ash utilization and regulatory norms
- Sustaining efficient plant operations
- Risk of not getting schedule

These areas are being regularly monitored through reporting of key performance indicators of identified risks. Exceptions with respect to risk assessment criteria are reported regularly to the Board of Directors.



Coal transportation through MGR at NTPC Power Station

Stakeholder Engagement

9

With the changing business dynamics, the performance of a company is also measured by how they manage on the economic, social, environmental and ethical aspects to create a long-term value for its stakeholders. NTPC's stakeholder engagement is an ongoing journey where the company aims at understanding the expectations of its stakeholders and collaborates with them to achieve desired results. In NTPC, the stakeholders have been identified on the basis of rigorous internal analysis. Stakeholder engagement is a part of its business process involving continuous dialogue between the company and one or more of its stakeholders. This process of dialogue is a means of collecting feedback regarding NTPC for assessing stakeholder expectations and deciding the company's strategies to fulfill these expectations. Nine stakeholders have been identified on the basis of internal analysis.



There is no change in the list of stakeholders identified last year. To ensure effective stakeholder engagement, NTPC follows the principles of engagement as given below:

Principle of Openness : Ensure open and transparent communication with stakeholders on issues that are of mutual interest.

Principle of Accountability : NTPC's stakeholders have always shown incredible trust in the company that is not only the company's greatest strengths, but also reflects in its reputation as a highly credible power generator and a great workplace. In order to take on to the trust of its stakeholders, NTPC deems it inevitable to link the engagement processes and their results with the core business of decision making.

NTPC Stakeholder Engagement Model

Stakeholder engagement is a part of the business process involving continuous dialogue between the company and one or more of its stakeholders. NTPC has well defined forums for stakeholder consultation with defined frequencies. These forums have been used for identifying stakeholders' expectations in context of sustainability. The feedback is utilized for deciding the company's strategies to fulfill these expectations.



Stakeholder Engagement



NTPC Directors addressing the stakeholders

Engagement with Government : Government of India is NTPC's largest shareholder. NTPC constantly interacts with the Government entities like the Ministry of Power, MNRE, Departments, BEE, Parliamentary Committees, Controller and Auditor General of India, and the Members of Parliament, etc. The Government of India (GoI) holds 69.96% of the NTPC's shares and the Ministry of Power (MoP) is the administrative ministry for the Company. The Government has nominated its representatives on the Company's Board.

NTPC signs Memorandum of Understanding (MoU) with the Ministry of Power annually. This MoU fixes elaborate targets in all aspects of NTPC's business, viz. financial, operational, project execution, CSR & Sustainability, HR Management, R&D etc. The GoI regularly reviews the performance of the Company through various means. This includes Quarterly Power Review (QPR) and reviews by Parliamentary Committees, Controller and Auditor General of India, Department of Public Enterprises and the Members of Parliament.

Engagement with Shareholder & Investor : Apart from 69.96 % of NTPC's equity with GoI, the balance free float of 30.04% of its equity comprises of domestic institutional investors, foreign institutional investors, the individual investors and others (as on 31 Mar'16).

Apart from the Govt., there are about 7 Lakh shareholders of NTPC stock reflecting the widespread interest and confidence in the Company. Presently, NTPC is under study by around 50 research analysts.

There is a dedicated Investor Services Department (ISD) apart from the Company Secretariat which deals with the statutory compliances and other related matters. Investing and Financial Community has the following expectations:

- Creation of value
- Transparency and timeliness with regard to economic and financial information
- Corporate governance and risk management

NTPC ensures a transparent flow of information, regarding its working, with its investing community, as part of its sound corporate governance practice. By communicating in a targeted, systematic and transparent manner, NTPC provides the capital market with shareholder-relevant information and cultivates long-term relationships with its target groups so as to increase trust in the company. Various modes adopted for addressing investors' concerns and dissemination of information are as follows:

Annual Analysts and Investors Conference : NTPC's Annual Investors Conference is a platform for the Company's Board to interact with the investing community,

and addresses their concerns about the Company. Link of presentation at the 11th Analysts & Investors Meet held at Mumbai on 01/08/2016 is given as under: <http://www.ntpc.co.in/en/investors/presentations>

One-on-one Meetings : NTPC ensures regular one-on-one meetings of its analysts and fund managers with the functional Directors. Additionally, there is regular participation in investor conferences to address investors' concerns and to take their feedback about the Company.

Road Shows : Pro-actively participating in domestic and international road-shows to extend the Company's reach to a wider array of potential investors.

Conference Calls : Quarterly Conference Calls with investors by NTPC management to disseminate information behind quarterly financial numbers.

Public Updates : Regular disclosures through Stock Exchanges and Press about important developments in the Company.

Online Updates : There is an Investors page on the Company's website that is dedicated to providing information on Share Transfer Agent, contact references of the Company Secretary and the Investor Services officials. The page also provides latest announcements, investors' presentations, press releases, transcripts of con-calls, annual reports, calendar of important events and investors contact points, etc.

Compliance of Guidelines Issued by DPE on Investor Relations :

NTPC complies with the Guidelines issued by DPE on Investor Relations. Actions taken in this regard are:

- Four meetings of the Shareholders' Grievance Committee were held during the FY-2016.
- There is a dedicated e-mail id isd@ntpc.co.in wherein complaints are received and redressed either over the phone or through e-mail or through postal mail.
- Company Secretary is the compliance officer in terms of Regulations 6 of SEBI LODR.
- Karvy Computershare Pvt. Ltd., Share Transfer Agent, of the Company has provided a customized package with the URL - <http://karisma.karvy.com> wherein NTPC is able to track the investors complaints sent to Karvy and reply to the investors is forwarded timely.

Engagement With Regulators :

NTPC, being a Central Power Generating Company, is guided by the regulations framed by Central Electricity Regulatory Commission (CERC). The tariff for electricity sold by NTPC stations is determined by CERC. NTPC's engagement with its Regulators is broadly of the following types:

- Formulation of New Regulations: NTPC provides its comments on the draft regulations and presents its views to the Regulator.

- Tariff determination process for different stations: NTPC files detailed petitions for tariff separately for each station in the formats prescribed by CERC.
- Besides, NTPC also engages with CERC on any other matter, such as, taking up on the difficulties faced during implementation of any regulation, relaxation required, etc.

Engagement with Employees :

Employees form the most important stakeholder strata of a Company. They are the ones who drive the Company and help realize its vision and mission. NTPC ensures continuous interaction between its management and employees at the unit, regional and apex levels. The apex fora for workmen and executives are National Bipartite Committee (NBC) and NTPC Executives Federation of India (NEFI), respectively. The Company holds regular meetings and workshops for workmen and executive association wherein issues relating to performance and productivity are discussed and addressed. Employee satisfaction, professional & career growth opportunities, social welfare, health, safety, and quality of life are some of the issues that are continuously addressed in consultation with the employees.

NTPC has identified various participatory forums, such as, Power HR forum, NOCET, Professional Circles (PC), Quality Circle (QC), Suggestion scheme, NCYM, Quest for Excellence, International and QCFC QC conventions, presentations in conferences, etc. These Centres for Excellence help in image building, policy advocacy, excellence & competence development, and knowledge dissemination.

Engagement with Neighbourhood Communities :

NTPC has always been sensitive to its neighbourhood communities. Those affected by setting up of NTPC projects may have their concerns and aspirations with reference to environment, community development, or any other relevant aspect. Public hearings as well as meetings with local interest groups, like, Village Development Advisory Committee and Village Panchayat help NTPC to identify such specific needs or concern areas. To meet the needs of local communities and the Project Affected People (PAP) comprehensive programmes have been implemented in line with ICD, R&R policy of the Company.

The consultation process is continued even after setting up the projects. The community development initiatives at NTPC are taken in a planned way as per CD policy. CSR activities are identified after appropriate consultation with relevant stakeholders based on Needs Assessment Surveys. Community involvement is ensured during implementation and monitoring of the community development initiative. The assets developed for community development initiatives are handed over to local authorities and Gram Panchayats for maintenance. Community participation along with involvement of local administration &

Stakeholder Engagement

village Panchayats ensures the successful adoption of initiatives by the community. Every two years, NTPC conducts a third party Social Impact Assessment Survey for all its major CSR activities at various stations. The Company recognizes Customer Focus as one of its core values.

Engagement with Customers :

The Company recognises Customer Focus as one of its core values. It supplies bulk Power to fifty distribution companies under varied agreements. A list of NTPC beneficiaries can be found later in the report in 'Key Data at Glance' section. NTPC believes in Customer Focus. The Company has an elaborate system of Customer Relationship Management (CRM) through which it tries to reach out to its customer base. Under CRM, structured interaction with customers takes place regularly for sharing of experiences and expectations. Following are the key features of the NTPC Customer Relationship Management System:

Customer Support Services -

Under CRM, NTPC offers support services to its customers on technical and managerial areas as per their specific requirements. Customer support activities, in the form of workshops and seminars, are organized on different functional areas, like, O&M, Efficiency, HR, IT, Finance, etc. The objectives to share NTPC's expertise and best practices with its customers. Officials of the customer organization participated in various technical and managerial training programmes being organized at our Power Management Institute, Noida for knowledge update.

Interactive Forums -

NTPC interacts with its customers regularly in the following forums:

- Regional Power Meet is organized at regular intervals to provide a platform for interaction with the top level officials of the beneficiaries.
- Business Partner Meets organized for specific customers to facilitate interaction and provide opportunity to discuss specific issues.
- Meetings of Regional Executive Directors with Heads of various customer organizations.
- Day-to-day interaction with SEB Managers (NTPC Officials posted at SEB headquarters) for understanding and resolving issues.
- In addition to the above forums, structured meeting involving NTPC and beneficiaries are held in forums i.e. Regional Power Committee, Commercial Committee, Operation Coordination Committee Meetings etc.

Engagement with Suppliers :

Suppliers are the lifeline of operations at NTPC. A good supplier relation is of utmost importance for timely construction and operation of a plant. It is only on account of the suppliers' on-time and quality performance that the Company can satisfy the demands of its customers.

At NTPC, fair, equitable and transparent tendering procedures are adopted for selection of suppliers. The tendering procedures have been devised incorporating best



Vendor Meet by Central Procurement Cell



Media Interaction

national and international practices in consultation with major NTPC suppliers. NTPC organizes pre-bid conferences with prospective suppliers to discuss the latest developments in the relevant areas and appropriately incorporates the inputs in its bidding documents before commencement of the tendering process. Further, it is a matter of pride for NTPC that the suppliers have lauded robust procurement systems of the Company during vendors meet. As regards the appointment of contractor for a package is concerned, a tender evaluation committee is nominated for evaluation of proposals submitted by the bidders. Based on the evaluation criteria specified in tender documents, tender evaluation committee finalizes the evaluation report and puts up Award recommendation for the appointment of lowest evaluated Bidder who meets the qualifying requirements prescribed in tender documents.

Engagement with Media :

NTPC has remained in the news because of its brilliant performance, contribution to the sector in society, widespread recognition and award and interface with a large number of stakeholders. The company regularly interacts with media both print and electronic, on various occasions including publication of quarterly results, annual results and other important events. NTPC issues press releases and advertisements on various activities as per requirement.

Engagement with the Citizens of India :

All citizens of India have been identified as stakeholders. NTPC generates 24% of the total electricity in the country. It is in this perspective that all citizens of India have been identified as stakeholders. CPSEs, like NTPC, are instruments of socio-economic development and change besides being corporate entities. The Right to Information Act, 2005 is also applicable to the Company. Any citizen of India can seek information from NTPC through a simple application under RTI Act 2005.

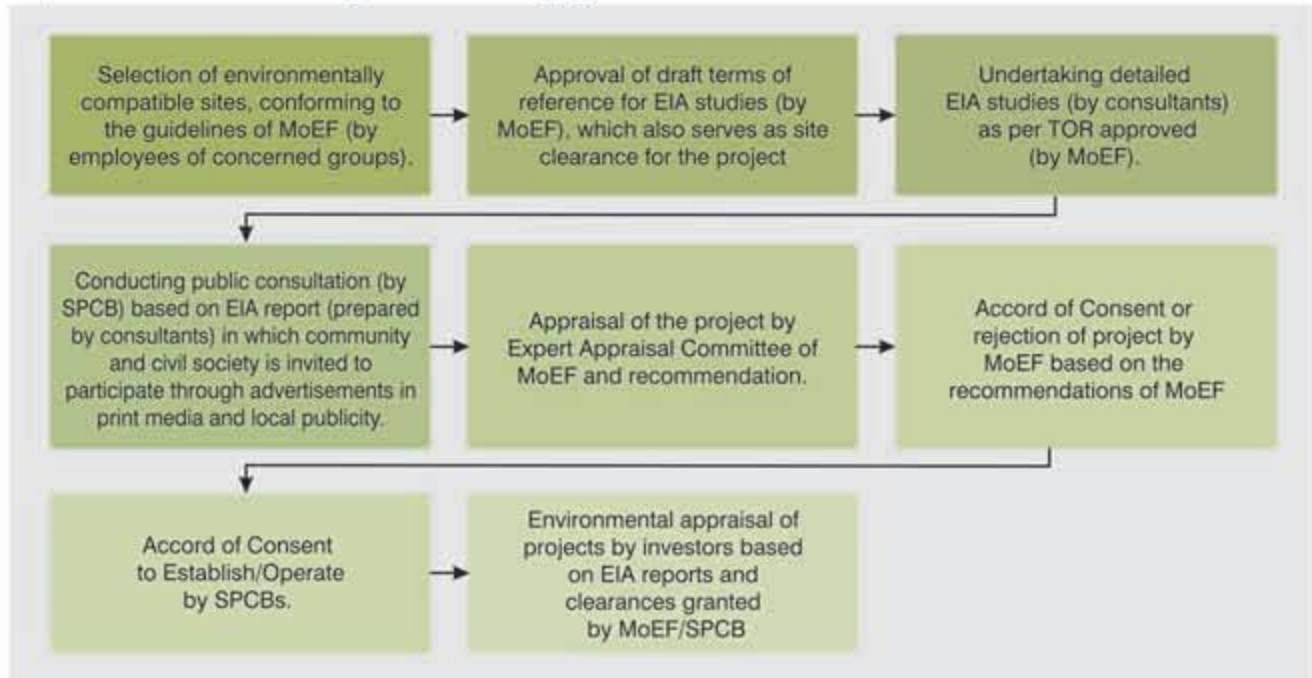
Stakeholder Participation in the Decision Making Process Related to Energy Planning and Infrastructure Development

Energy Planning : NTPC's plans and targets are based on the plans developed by the Govt. of India and Ministry of Power. NTPC also participates in various working groups formed during the process of energy planning and infrastructure development. During Annual General Meeting (held every year), all shareholders and stakeholders are briefed about organization growth, plant resource requirement, climate change issues, etc.

Stakeholder Engagement

Infrastructure Development : For infrastructure development, stakeholders involved are community, employees, Expert Appraisal Committee of MoEF, Central Govt. (MoEF), State Govt. (SPCB), Consultants for EIA Studies and Investors. NTPC has a robust system for infrastructure development involving stakeholder participation.

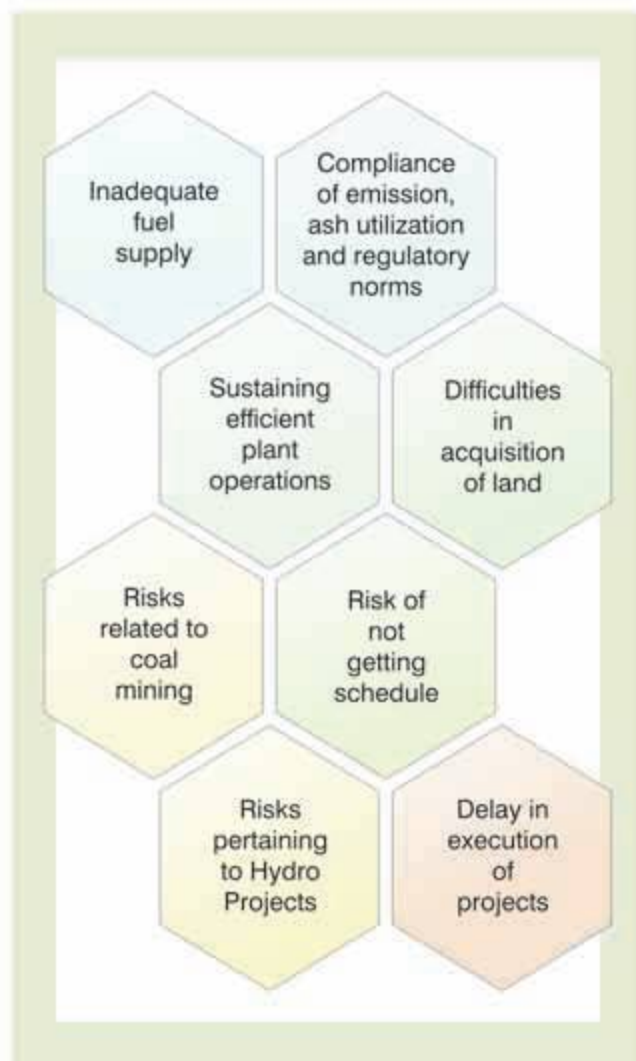
Steps to be followed involving stakeholder engagement:



Ms. Deupa Malik, Paralympics, address NTPC employees as eminent speaker

Materiality Analysis

NTPC has been conducting materiality assessment for the past 3 years to identify sustainability issues of critical importance. This is essential in developing a focused sustainability strategy for the company. This year as we graduate from GRI-G3.1 reporting guidelines to GRI-G4 reporting guidelines, the company identified 26 key risks. To identify and manage risks, NTPC has an elaborate Enterprise Risk Management framework in place. An Executive Director level Committee, namely, 'Enterprise Risk Management Committee (ERMC),' has been entrusted with the responsibility to identify and review the risks, formulate action plans and strategies to mitigate risks on short term as well as long term basis. ERMC has classified following 8 risks as the high risks for the company from an exhaustive list of 26 key risk.



The highest Governance body (Board of Directors) is actively involved for identification and management of economic, environmental and social impacts, risk and opportunities.

These areas are being regularly monitored through reporting of key performance indicators of identified risks. Exceptions with respect to risk assessment criteria are reported regularly to the Board of Directors. To deliberate on strategies for mitigating risk, ERMC meetings are held quarterly.

Committee on Risk Management

As per revised Clause 49 of the Listing Agreement a Risk Management Committee was constituted with majority of its members being members of the Board of Directors.

Risk Management Committee comprises following members :

- Director (Technical)
- Director (Projects)
- Director (Operations)
- Head of Corporate Planning/ Chief Risk Officer(CRO)
- Regional Executive Director (Coal Mining)

Senior most Functional Director shall be the Chairman of the Committee. The quorum of the Meeting is three members. The Regional Executive Director(s)/ Executive Director(s)/ Functional Head at the level of Group General Manager/ General Manager are special invitees to the Meetings of the Risk Management Committee, on case to case basis, based on major risks identified and required to be reported/ taken care of.

The role and responsibilities of the Risk Management Committee are:

- Finalization of risk assessment as assessed under the Risk Management Framework;
- Monitor and review risk management plan/ framework as framed by the Board and earlier assigned to Enterprise Risk Management Committee;
- Monitor implementation of risk management plan/ framework;
- Informing the Board about the risk assessed and action required to be taken/ already taken for mitigating the risks on quarterly basis by the CRO.
- Take up any other matter as directed by the Board from time to time.

Stakeholder Engagement

The NTPC conducts regular consultation with their stakeholders related to economic, environment and social aspect as provided in below tables :

Stakeholder Engagement Process

Engagement Forum	Frequency	Purpose of Engagement	Key Sustainability Concerns Identified
a) Government of India			
Secretary level review	Quarterly	<ul style="list-style-type: none"> Policy development in line with national priorities 	<ul style="list-style-type: none"> Delay in execution of Projects
Meeting with MoP, DPE, Parliamentary Committees, CEA etc.	As per requirement	<ul style="list-style-type: none"> Meeting 5 year national plans Target monitoring – Annual MoUs Compliance with Govt. Directives and Guidelines Transparency and Governance Company Performance and its reporting New initiative 	<ul style="list-style-type: none"> Sustaining Efficient Plant Operations Coal Mining (Land Acquisition) Climate Change Environment Issues Community Development
b) Shareholders & Investors			
Conference Calls	Quarterly	<ul style="list-style-type: none"> Management Vision and future plans 	<ul style="list-style-type: none"> Delay in execution of Projects
Analyst and Investors Annual Meeting	Annual	<ul style="list-style-type: none"> Company Performance 	<ul style="list-style-type: none"> Sustaining Efficient Plant Operations
Annual General Meeting	Annual	<ul style="list-style-type: none"> Sustainability Challenges and concerns Growth opportunities of the Company 	<ul style="list-style-type: none"> Sustaining Growth
One on One Meeting and Investor Conferences	Regular	<ul style="list-style-type: none"> Handling queries of investors, fund managers & analysts 	
Review meets with Bankers (Domestic and Foreign)	Annual	<ul style="list-style-type: none"> To discuss debt requirements. 	
c) Regulators (CERC) & Other Statutory Authorities (CAG, MoEF, CPCB/SPCB etc.)			
Public hearings Statutory Audits & Inspections, Meeting for Clearances, Consents & Compliances	Need based As per statutory provisions; Need based	<ul style="list-style-type: none"> Issues relating to tariffs Optimising cost of electricity Financial Audits & Transparency Obtaining Project clearance, Environment Clearance & Clearance Conditions Obtaining Consents and meeting Consent Conditions 	<ul style="list-style-type: none"> Environmental Clearances Ash Management Compliance with changing environmental norms Tariff of Stations
d) Employees			
Participative forums, Communication meetings, Employee Climate Surveys, Intranet, Trainings and Workshop, Internal Magazines	As per defined frequency or as per requirement	<ul style="list-style-type: none"> Grievances and feedback Employee Satisfaction Professional Growth Health, Safety & Security Issues Work – Life balance Quality of Life Remuneration and Rewards Actualisation of Core Values 	<ul style="list-style-type: none"> Attracting and retaining skilled and experienced employees. Safety & security of people and property
e) Neighbourhood Communities			
Public hearings, VDAC, Public Information Centres	Need based; at least once in a year	<ul style="list-style-type: none"> Rehabilitation & Resettlement Issues Community development Issues Environmental Issues Community Grievances 	<ul style="list-style-type: none"> Community Development Land Acquisition

Stakeholder Engagement Process

Engagement Forum	Frequency	Purpose of Engagement	Key Sustainability Concerns Identified
f) Customers			
Regional Customer Meets	Once in two years for each region	<ul style="list-style-type: none"> • Top & Middle level Interactions between Customers & NTPC • Resolving Technical Issues • Resolving Commercial issues 	<ul style="list-style-type: none"> • Health of State Utilities • Risk of not getting schedule.
Regional Power Committees (RPCs)			
1. Commercial Co-ordination Committee	Quarterly	<ul style="list-style-type: none"> • Grid Operation, Scheduling and other related issues 	
2. Technical Co-ordination Committee	Quarterly	<ul style="list-style-type: none"> • Support services to customers on various area of power business 	
3. Operation Co-ordination Committee	Monthly		
Business Partner Meet	Yearly		
Customer Support Services	As per requirement		
g) Suppliers			
Pre-bid conference, Suppliers Meet, Vendor Enlisting, NTPC Website	Before tendering & Need based	<ul style="list-style-type: none"> • Finalisation of Technical Specifications • Qualifying Requirements of Vendors • Sharing Latest Technological Developments in the Area • Resolving Contractual Disputes 	Inadequate Fuel Supply
h) Media			
Press Releases, Press conference	Need based, Event based	<ul style="list-style-type: none"> • Information Sharing • Brand Image • Keeping the general public and community apprised of developments such as new capacity additions, performance and new developments. 	Brand Image
i) Citizens of India			
Right to Information Website (RTI) Act, NTPC	Continuous	<ul style="list-style-type: none"> • Rehabilitation & Resettlement Issues • Community Development Issues • Environmental Issues • Employee Grievances • Contractual Disputes 	<ul style="list-style-type: none"> • Community Development • Environmental Issues

Management approach on Sustainability issues - To address key material issues, various initiatives were taken by NTPC during FY-2015 & 2016 and the same are summarized below:

Issues	Sustainability Impact	Taken on key issues raised by stakeholders
Inadequate fuel supply	<ul style="list-style-type: none"> • Availability of power • Sustaining Growth • Economic Performance 	<ul style="list-style-type: none"> • Signing of Long Term Coal Supply Agreement with Coal Companies Valid for 20 years • For any shortfall, coal procurement through e-auction, import and bi-lateral agreements with coal companies • Backward Integration into coal mining • Changing product mix by diversifying into renewable energy sources
Delay in execution of projects	<ul style="list-style-type: none"> • Availability of power • Sustaining Growth 	<ul style="list-style-type: none"> • Identification of Critical Project implementation risks • Implementation of Integrated Project Management & Control System (IPMCS) • Timely resolution of disputes • Standardisation and bulk ordering of 660MW & 800MW Units

Stakeholder Engagement

Management approach on Sustainability Issues

Issues	Sustainability Impact	Take on key issues raised by stakeholders
Financial health of State Distribution Utilities	<ul style="list-style-type: none"> • Risk of not getting schedule • Sustaining appropriate tariff and realisation 	<ul style="list-style-type: none"> • Signing of Long Term Power Purchase Agreements (PPAs) with State Utilities for 25 years • Minimising cost of electricity production • Rebate Schemes for timely payments • Supplementary agreements signed with all DISCOMS for first change over state utilities receivables after 2016 • Geographically diversified customers • Payment security mechanism in place • PPAs have been signed for all stations/projects • Policy of securing PPAs for all new plants before Investment approval
Sustaining efficient plant operations	<ul style="list-style-type: none"> • Availability of Power • Economic Performance • Environmental Performance 	<ul style="list-style-type: none"> • Enhancing energy efficiency • Advanced overhaul planning • Well defined predictive, preventive and corrective maintenance practices. • Adoption of New Technologies
Competition	<ul style="list-style-type: none"> • Economic Performance • Retaining skilled and experienced employees 	<ul style="list-style-type: none"> • Long Term Power Purchase Agreements • In-house Engineering Capabilities • High operational efficiency • Competitive Energy pricing • Retaining best employer status
Environmental Clearances	<ul style="list-style-type: none"> • Difficulty in obtaining environmental approvals 	<ul style="list-style-type: none"> • Comprehensive EIA studies • Careful Site Selection • New Technology adoption • Policy Advocacy
Changing Environmental Laws	<ul style="list-style-type: none"> • Compliance of emission, ash utilization and regulatory norms 	<ul style="list-style-type: none"> • Enhancing Environmental Performance • Reducing Pollution • Minimizing waste generation • New Technology adoption • Renovation & Modernization
Ash Management	<ul style="list-style-type: none"> • Ash dyke availability (MoEF has prescribed only 0.25 acres / MW land for new ash dyke, which is not sufficient) 	<ul style="list-style-type: none"> • Policy advocacy to enhance land being provided for ash dykes • Maximise Ash Utilisation • Effective Ash Pond Management • Use of new technologies for ash disposal & storage. • Ash Water Recycling
Availability of water for power plants	<ul style="list-style-type: none"> • Scarcity of Water 	<ul style="list-style-type: none"> • Use of new technologies to reduce the requirement of water • Promoting recycle and reuse.
Climate Change issues	<ul style="list-style-type: none"> • Global warming • Water Scarcity 	<ul style="list-style-type: none"> • Enhancing energy efficiency • Diversification into renewable energy sources. • Changing product mix ratio • New Technology adoption
Difficulties in acquisition of land	<ul style="list-style-type: none"> • Delay in capacity 	<ul style="list-style-type: none"> • Implementation of R&R Policy • Best possible R&R package for the PAPs in consultation with stakeholders and State Government • Community Development • Land acquisition cell created at corporate centre to support the activities at site.
Community Development	<ul style="list-style-type: none"> • Inclusive Growth 	<ul style="list-style-type: none"> • Implementation of NTPC CD Policy • Need Assessment Surveys • Taking up specific CSR Projects for the local community
Safety & Security of people and property	<ul style="list-style-type: none"> • Occupational Health & Safety • Achieving "Zero Accident" rate 	<ul style="list-style-type: none"> • Conducting Safety Audits • Implementation of Safety Policy • Elimination of all unsafe actions and conditions • Need based mobilization of security manpower at projects • Up-gradation mobilization of security manpower at projects • Up-gradation of security technology • Capacity building

Economic Performance



NTPC's revenue has increased by ₹ 668.27 Cr. to ₹ 75,176.22 Cr. in FY-2015 w.r.t. previous year but decreased by ₹ 3,655.58 Cr. to ₹ 71,520.64 Cr. in FY-2016 w.r.t. FY-2015 due to lower demand of electricity. Economic Value Retained has enhanced by ₹ 2681.2 Cr. to ₹ 12,357.88 Cr. in FY-2015 but decreased by ₹ 28.96 Cr. to ₹ 12,328.92 Cr. in FY-2016 w.r.t. previous year.

Direct Economic Value Generated & Distributed

(₹ in crores)

Particulars	FY 2013-14	FY 2014-15	FY 2015-16
Revenues	74,507.95	75,176.22	71,520.64
Sub Total (A)	74,507.95	75,176.22	71,520.64
Operating Cost	50,031.33	53,398.59	48,831.77
Employee Wages & Benefits	3,867.99	3669.78	3609.32
Payments to Providers of Capital	7,147.74	4,805.00	5992.60
Payments to Government	3,664.00	819.06	268.14
Community investments	120.21	125.91	489.89
Sub Total (B)	64,831.27	62,818.34	59,191.72
Economic value retained (A-B)	9,676.68	12,357.88	12,328.92

For FY-2015, revenue figures reflected above are excluding provision written back. Issue of bonus debenture of ₹10,306.83 crore and dividend tax thereon amounting to ₹2,060.76 crore out of free reserve during the year, have not been included in payment to providers of capital and payments to Government respectively. Economic Value Retained has improved significantly even though community investment has shown improvement with the increase in Revenues, as depicted below :



Policy and practices Adopted for Suppliers & Local Sourcing

In order to encourage Indian bidders/ suppliers, provisions regarding Price Preference and deemed Export Benefits (Customs & Excise Duty benefit) are stipulated in the bidding documents as per the extant policy of Government of India, for the local supplies made by the bidder. In addition, price preference is also granted to indigenous supplies vis-à-vis imported supplies. The provision envisaged is in the bidding documents in respect of labour, welfare, statutory provisions, safety etc. for Supply cum Erection and civil packages invited on international Competitive bidding and domestic Competitive Bidding basis.

There are economic opportunities for the local suppliers arising out of the need for goods and services by NTPC projects. Many indirect benefits are available to the project affected families as additional facilities, over and above the entitlements. Project Affected Persons are given preference for opportunities of projects and townships like Employment with contracting agencies, Allotment of Shops, Kiosks in township, Award of petty contracts, Vehicle hiring in projects etc. All local infrastructure services at NTPC plant as well as offices are met through outsourcing to local suppliers which amount to 5 to 10% contract value at station.

Financial Assistance from Government

The holdings of Government of India in NTPC is reduced to 69.96% of paid up capital as on 31.03.2016 after disinvestment in 2004, 2010, 2013, 2014 and 2016. NTPC is running on self-sustained basis and is giving regular dividends to Govt. of India on its equity. No further capital has been invested by Govt. of India in NTPC since the year 1999-2000.

NTPC does not receive any direct government benefit by way of subsidies, grants, royalties or tax holidays. Some of NTPC's power plants are covered under exemptions of Section 80-IA of Income Tax Act 1961 in respect of power generating unit if it begins to generate power at any time up to 31.03.2017. However, this exemption is available to all the companies in the infrastructure sector and is not specific to NTPC.

RESEARCH & DEVELOPMENT (R&D)

Management approach, Strategies & Contributions of R&D wing, NTPC Energy Technology Research Alliance (NETRA) are as follows:

Management approach:

Focus areas: 1. Efficiency & Availability Improvement & Cost reduction; 2. New & Renewable Energy; 3. Climate change & Environmental Protection and 4. Scientific Support to Stations.

Expenditure of 1% Profit after Tax (PAT) towards R&D.

Strategies to meet the challenges:

1. NTPC-NETRA has collaborated with reputed National & international Institutes/agencies, so that work on different collaborative projects of mutual interest can be taken up. The advisory Council of NETRA i.e. Research Advisory Council (RAC) also helps to identify suitable collaborators, new research proposals and fabricating agencies/vendors.
2. Several collaborative R&D project is being taken up to harvest the best available knowledge and its conversion in technology development.



NTPC Bankers' Meet

Developmental Projects (ongoing):

Research Area	Description	Benefits
Focus Area: Efficiency & Availability Improvement		
Flue Gas based Sea water to DM Water System	Waste flue gas heat is harvested for production of DM water from sea water. A pilot cum demo plant of 120 TPD capacity is being setup at NTPC Simhadri. Erection work in progress and commissioning expected by August'16.	Utilization of thermal energy from Waste flue gas to produce DM water from sea water.
Flue Gas based Air conditioning system	After successful demonstration of technology at NTPC Ramagundam for air conditioning the same is being scaled up 400 TR plant for NTPC Talcher-Kaniha.	Utilization of thermal energy from Waste flue gas to produce air conditioning.
Development of Intelligent software for performance improvement	In-house developed software NTPC e Power plant solution and Chem. Analyser for Talcher-Kaniha plant serves as real time advisory to plant operators for performance improvement.	Realtime plant performance monitoring and control.
Earthing assessment of Dadri Station	Dadri plant was 30 year old and there was an apprehension raised by station that the integrity of the system may be at risk. NETRA carried out the assessment in which step and touch potentials are measured (first time in NTPC)..	Results are simulated for 40KA and 63 KA and results indicate that the system is within the safe prescribed limits
Reclamation of Transformer oil in Talcher STPP	This has been carried out for the first time in NTPC in a transformer; whole oil was degraded and supposed to be replaced. Instead of replacing, the oil was reclaimed through a unique technology with encouraging results and presently under evaluation.	Benefits: saving of environment with less use of natural resources.
Partial Discharge (PD) analysis and location identification in transformer.	NETRA started carrying out PD measurement of transformers, which is also being done for the first time. DGA used to detect PD activity without location. A combination of High Frequency Current Transformer (HFCT) and Acoustic sensors now being used for location identification.	Early detection of fault and probable prevention of catastrophic failures.
Focus Area : Renewable		
Solar Thermal Component & Proto-type evaluation facility	Under Indo-German R&D cooperation, following Solar Thermal Component & Prototype evaluation facility are being set up: <ul style="list-style-type: none"> ▶ Deflectometry System – Static & Mobile ▶ Photogrammetry System ▶ Reflectometer & Spectro-photometer ▶ Radiometer station ▶ Software & Algorithms 	Component & Proto-type evaluation facility
Floating Solar PV Plant	Developing indigenous floaters with CIPET Chennai, and will install trial setup of 5 kWp floating PV system at NTPC Kayamkulam along with ground mounted system of equal capacity for performance comparison and benefit analysis.	Saving on land cost, Water evaporation reduced More generation due to lower panel temperature Algae growth results in saving in water treatment
Develop & set up Integrated Self Powered bio-diesel plant at NTPC Vindhyachal	Integrated self powered pilot plant at NTPC Vidhyachal by using Pongamia fruits utilizing 83% inherent energy of fruits instead of existing 17%	Bio-diesel and bio-cake production for use as source of fuel

Economic Performance

Research Area	Description	Benefits
Focus Area: Climate change & Environment		
Development of modified amine absorption based process to separate CO ₂ from flue gas	Joint project with IIT Guwahati to develop an energy efficient modified amine based process for CO ₂ separation from flue gas, targeting 20% less energy consumption. Test facility with 20 LPM flue gas absorption, to be designed for study of the absorption process.	Development of an energy efficient amine based process for CO ₂ separation from flue gas.
Flue gas utilization for pH reduction of re-circulating ash pond water (ETP-III) at Ramagundam.	Project started in NTPC Ramagundam, to reduce the pH of ash pond re-circulation water from 11.5 to 8 by sparging flue gas through it which may eliminate / reduce use of the HCl acid. After sparging, SO ₂ and CO ₂ in flue gas are removed by 97-98% and 17-18% respectively.	Bring down pH of the ash pond re-circulation water to around 8 from 11.5 and parallelly helps to mitigate CO ₂ and reduce the consumption of HCl (3-4 Tons/day).
Fly ash based Geopolymer concrete	CSIR-AMPRI, Bhopal has recently developed cement free reinforced concrete structure wherein fly ash based Cementitious materials have been developed and used for non-structural applications. Development of Geopolymer which can replace the conventional cement in construction industry is being undertaken.	Bulk fly ash utilization
Focus Area : Scientific Support, Efficiency & Availability Improvement		
Residual Life Assessment of Superheater and Reheater tubes of ageing boilers of NTPC Stations	Residual life assessment of 11 cases of superheater / reheater tubes of boilers of NTPC stations (Badarpur, Korba, Ramagundam and Dadri) through accelerated creep testing was carried out.	Extension of life for superheater and reheater tubes for a period of 10 years was recommended to NTPC stations.
In-situ creep damage assessment of Superheater Outlet Header.	To assess the effect of plant transients on superheater outlet header at identified critical locations, the in-situ creep damage assessment of the header of Unit 2, Dadri with 21 years of service was carried out during its overhaul.	Health assessment of the in-service superheater outlet header of Dadri Unit 2 was done for its further use.
CFD based modification of Flue Gas duct	CFD modeling technique was used to address the problems related to the flue gas flow in ducts. Modification of Flue Gas duct was implemented at following stations: 1. Tanda-Duct section APH outlet to Chimney inlet) 2. Vindhychal- Duct section APH outlet to ID fan inlet. 3. Singrauli- Duct section APH outlet to ESP inlet	1.Tanda : ID fan Power Reduction of 100 kW/unit 2.Vindhychal St-I : ID fan Power Reduction of 70 kW/unit 3.Singrauli : 30 mmWC pressure drop reduction
Process Improvement using CFD Modeling	CFD modeling technique was used to address problems related to flow in ducts, ESP, CW pumps. Modification carried out at following station: Simhadri –Duct section APH-ID Fan Inlet 1. Rihand St-III, Korba St-II, CW pump impeller changed on findings of Engineering group input CFD Analysis of Sump and impeller 2. CFD based modification finalized for ESP performance improvement in Ramagundam St-II (Collaborative project with M/s VGB Germany)	(1) Simhadri : ID Fan current reduced by 80 Amp. (2) CW pump vibration reduced from > 150 μ pk-pk to around 100 μ pk-pk (3) Implementation in Ramgundam in next overhaul in July 2017

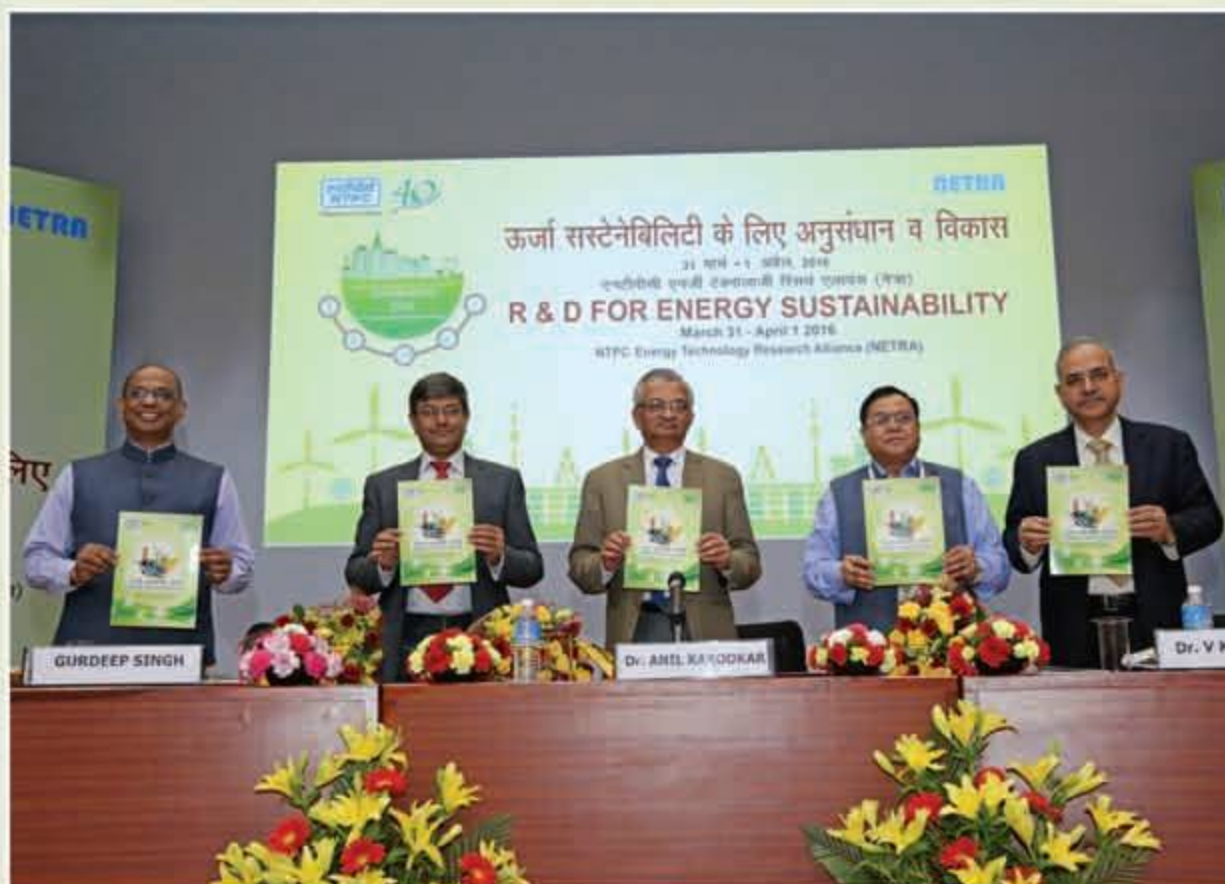
Investments for Public benefit

NTPC has taken up Decentralized Distributed Generation (DDG) in the vicinity of its existing power stations for assisting GOI in achieving the goal of "Electricity for all" and with an objective of demonstrating a sustainable business model for integrated growth of villages. Such projects cannot be commercially viable & sustainable unless the entire capital cost is provided as grant. This is essential for making the power supply affordable for the rural community.

Grant is funded through Funding agencies & gap between actual capital cost and grant is bridged by NTPC Foundation.

Green Initiatives in Investor Relations:

NTPC has made use of recent circulars of Ministry of Corporate Affairs and there by has started sending annual reports and other communications to investors through email after taking their consent. This has resulted in huge savings of paper. In FY-15 & FY-16, following savings were made:



Inauguration of Energy Technical Journal- NTPC's initiatives in R & R Sustainability

Economic Performance

Name of Communication	No. of Shareholders to whom e-communication sent	Savings involved
Annual Report 2013-14	3,68,247	Around 126 tonnes of paper saved resulting in saving of 3028 trees (taking ~24 trees per ton of paper)
Annual Report 2014-15	3,47,249	Around 180 tonnes of paper saved resulting in saving of ~4320 trees (taking ~24 trees per ton of paper)
Dividend Intimations :		
Interim Dividend 2014-15	3,52,887	Monetary Savings: ₹ 1.81 crore (approx)
Final Dividend 2013-14	3,55,205	
Dividend Intimations :		
Interim Dividend 2015-16	3,36,572	Monetary Savings: ₹ 1.81 crore (approx)
Final Dividend 2014-15	3,50,141	



MoU with HDFC Bank

Environmental Performance

11

At NTPC, all our activities and operations are guided by sound environmental practices, second to none. The company has a well-defined environment policy and it is committed to protecting the fragile ecology as well as ensuring a sustainable growth of electrical power. It is passionate about ensuring a clean environment for all of us and future generations. Harmony between man and environment is the essence of healthy life and growth.

NTPC has taken various initiatives to reduce the environment impact in and around the power stations by way of conducting the EIA studies before plant commissioning activity and accordingly, Environmental Management Plans have been prepared at all stations as a precautionary approach; wherein, mitigation measures of all the environmental issues are taken into consideration as covered in the study area.

For properly addressing the environmental issues NTPC has developed an environmental policy which focuses on optimum consumption of natural resources based on resource management; and it covers the minimization of waste by recycling and reuse, adoption of latest technologies by augmentation of old units for higher efficiency for environmental impact mitigations. NTPC is regularly modifying the power station for maintaining the environmental parameters as per the new norms of regulatory agencies. The Company is certified with ISO 14001 (Integrated Environment Management System) for adopting the best practices of environment management system at stations.

All NTPC plants have provisions for pollution control incorporated into their blueprints, right from the planning stage. In order to ensure that NTPC complies with all the stipulated environment norms, following state-of-the-art pollution control systems / devices have been installed to control air and water pollution:

Electrostatic Precipitators (DE & DS Systems)	Flue Gas Stacks	Low-NO_x Burners	Neutralisation Pits
Coal Settling Pits/ Oil Skimming Pits	Cooling Tower	Ash Dykes & Ash Disposal Systems	Ash Water Recycling System
Dry Ash Extraction System	Liquid Waste Treatment Plants & Management System	Sewage Treatment Plants & Facilities	Environmental Institutional Set-up

Environmental Performance

Following are the additional measures taken by NTPC in the area of Environment Management:

Environment Management During Operation Phase	Monitoring of Environmental Parameters	On-Line Data Base Management	Environment Review	Up-gradation & Retrofitting of Pollution Control Systems
Resources Conservation	Waste Management	Land Use/ Bio-diversity	Reclamation of Abandoned Ash ponds	Green Belts, Afforestation & Energy Plantations

NTPC being a responsible corporate, cares for its people and employees. It has developed the local infrastructures, health and medical facilities in and around the project area for economic upliftment of the societies. Protection of environment of surroundings by implementation of environmental management plans as suggested in EIA studies, adopting the latest technologies through renovation and modernization, in line with environmental action plan, as per the regular updating and changing of regulatory norms and directives. NTPC complies with all environmental laws.

Material Consumption

NTPC follows a comprehensive approach for improving material consumption efficiency, with due focus to the regular evaluation of resource consumption intensity. The

Approach for reduction of Material Consumption

- Measure
- Monitor
- Implement
- Evaluate

resource consumption intensity is improved through measurement, monitoring of consumption and implementation of improvement plans.

Environmental aspect is material for thermal power stations because they are

the source of air pollution (stack emission) and Water Pollution (Plant effluent) in and around the plant area affecting humans, flora & fauna.

Such aspects are regularly reported to the monitoring agencies as per GOI Rules & Regulation and NTPC conducts survey and study of plant surrounding areas for finding the impacts of the thermal power station operation. The recommendations of these findings are implemented as the environment management plan.

The mechanism are regularly being inspected and reviewed internally as well as externally by NTPC and Regulatory agencies such as SPCBs, CPCB and ISO certification agencies.



There is a decreasing trend in specific consumption of lube oil, hydrogen and HCL since FY-2013, NTPC does not use any significant recycled material. Only water is recyclable input material which is being re-used, rest other recyclable materials such as used oil, batteries, waste scrap etc. generated in the plant are being sold to registered recyclers. As far as water is concerned, NTPC is in the process of implementing Zero liquid waste discharge from plant premises and some stations has already achieved it; which will help in conservation of natural resources. It is noteworthy that NTPC does not use any poly-chlorinated Bi-phenyls (PCBs) in any of the generation processes across all locations.

The consumption of water treatment chemicals depend upon the intake water quality which is continuously deteriorating. The consumption of other materials also varies based on specific requirements and change in total generation, plant load factor etc.

Energy Management

NTPC in its endeavor towards being one of the world's most energy efficient power utilities, is committed to produce electric power in the most efficient manner, keeping in view environmental sustainability as also quality power production at optimum cost. NTPC has a four pronged approach for generation of "Green Power":



Energy Consumption-Direct & Indirect

Coal and Gas are main raw materials for NTPC and are used as fuel for power generation. Since Actual Calorific Value (ACV) of these fuels are a deciding factor for its specific consumption, higher the calorific value, lower the specific consumption. Efficient use of these resources is a main focus area for NTPC. Performance parameters of specific coal consumption, auxiliary power consumption and

specific oil consumption have shown improvement during the FY-2015 with respect to FY-2014. The trends for these parameters are shown in graph below:



Energy Conservation

Some of the important energy conservation measures taken by NTPC during the years are as under:

- Energy Audits:** As per BEE notification dt. 27th May 2014, mandatory energy audits, covering all plant systems, were to be conducted in all stations before 26th November 2016. Accordingly, mandatory energy audits of 20 stations were conducted during the financial years. A Conference of Energy Managers of all NTPC stations was organized to deliberate actions for energy / water conservation and disseminate the activities undertaken at various stations.

• **Auxiliary Power Consumption:** Actions undertaken to reduce auxiliary power consumption at various stations, inter-alia include: Replacement of inefficient BFP cartridges and attending BFP recirculation valves based on high SEC, Energy Efficient Coating on pump internals of Cooling Water / other large water pumps, HPBFP gear box modification to save energy, Installation of VFDs in various LT drives, Retrofitting of magnetic coupling in pumps, Retrofitting FRP blades in CT fans, Replacing existing motors with Energy Efficient motors, Installing grid-connected roof top Solar PV systems, Replacing old compressor with energy efficient screw compressor, De-staging of Condensate Extraction Pump, ESP hopper heater modification to save energy, Installing solar water heaters, Optimization of operation of CW pumps, ARCW, Clarified water pumps & Cooling Tower Fans during part load operation and during low ambient temperature conditions, Using TDBFP during unit startups, Replacement of conventional lighting fixtures with LED lighting, Replacement of street lighting HPSV / Halogen /

FTL fixtures with LED light fixtures, Attending / upgrading thermal insulation, Replacement of High energy drain valves.

- **Lighting:** To reduce energy consumption from lighting, replacement of conventional GLS lamps and FTLs with LED lighting and replacement of street lighting HPSV / Halogen / FTL fixtures with LED light fixtures were undertaken at various stations during the year.
- **Heat Energy:** Restoring & upgrading thermal insulation and replacement of high energy drain valves etc. were undertaken at some of the Stations to reduce loss of thermal energy.

Additional investments and proposals for reduction in consumption of energy: Provision of ₹ 14 crore has been kept in BE 2015-16 and ₹ 30.84 crore in BE 2016-17 for different energy conservation schemes like: Retrofitting VFDs in ID fans, LED lighting, Energy efficient LT motors, Solar water heaters for houses and canteen, Energy Efficient fan blades in Cooling Towers, Installation of VFDs in LT drives.

Impacts of measures taken for energy conservation:

Saving achieved during FY 2014-15 and FY 2015-16 on account of specific efforts for energy conservation are as below:

S. N.	Area/Activities	Energy Unit	Saving Units Qty.		₹ (crore)	
			2014-15	2015-16	2014-15	2015-16
1	Electrical	MU	115.4	116.9	29.46	27.70
2	Heat Energy(equivalent MT of coal)	MT	2100	7406	0.44	2.31
3	Heat Energy(equivalent MCM of gas)	MCM	1.558	0.085	2.04	0.13
	Grand Total				31.94	30.14

The quest for energy independence, economic growth and environmental sustainability increasingly suggests the importance of renewable energy sources. The mining, transporting and burning of coal is associated with heavy social and environmental costs; hence the thrust on developing sustainable renewable power is quintessential.

Gol has set an ambitious target of renewable energy capacity of 1,75,000 MW by year 2022 comprising of 1,00,000 MW Solar, 60,000 MW Wind, 10,000 MW Biomass and 5,000 MW Small Hydro Power. The solar target will principally comprise of 40 GW rooftop and 60 GW through large and medium scale grid connected solar power projects. The new solar target is expected to abate over 170 million tonnes of CO₂ over its lifecycle.

Apart from policy initiatives for the renewable sector, several measures in the solar power sector such as solar park policy, grid-connected rooftop solar plants and sharp decline in solar cost has made the investment in solar power business highly attractive. On the wind power front, National Institute of

Wind Energy under MNRE has estimated the country's wind energy potential at 100 metres above ground level to be of 302 GW. The Government envisages setting-up of 60 GW of wind power by year 2022 which augurs well for wind power developers. (Source:National Institute of Wind Energy, MNRE)

NTPC envisages a broad based generation mix by integrating conventional and alternative sources of energy to ensure long run competitiveness and mitigate fuel risks. NTPC envisions providing green power through locally available resources at affordable price, promoting clean energy.

Government of India (Gol) has planned to add 175 GW of Renewable capacity in the country. In line with this, NTPC has submitted its Green Energy Commitment to Gol for developing 10,000 MW of Renewable Energy Projects. Further, NTPC has been designated as the Nodal Agency for implementing a scheme for setting up of 15,000 MW of Grid connected Solar PV power plants under National Solar Mission.

NTPC has adopted a two pronged approach for development of grid-connected Solar power projects:

- NTPC's own capacity addition (EPC mode) under Green Energy Commitment.
- As Nodal Agency, coordination of Solar Project Implementation (Developer Mode) in partnership with Gol MNRE (Ministry of New and Renewable Energy) under National Solar Mission (NSM) Phase-II Batch-II Tranche- I.

MITIGATING CLIMATE CHANGE IMPACTS

Along with the financial top line & bottom line, company puts equally sharp focus on the environmental and social bottom line. Bulk of the new capacity addition would come through Super Critical Units leading to greater efficiency and reduced impact on the environment and thus promoting sustainable growth. Company is a pioneer in undertaking climate changes issues proactively. Its vision statement on sustainable energy Development is "Going Higher on Generation, lowering GHG Intensity". Environmental concerns buttress NTPC'S growth strategy for a low carbon future, which includes the followings:

1. Increasing cycle efficiency of fossil fuel based units

With emphasis on efficiency of electricity generation, company has adopted ultra-super technology by improving the steam parameters for North Karanpura (3x660MW) to 260Kg/cm², 593°C. For Khargone (2x660MW) and Telangana (2x800MW) steam parameter are 270Kg/cm², 600°C/600°C. Plant efficiency of these units is expected to increase by around 8% over that of a conventional sub-critical 500 MW unit and 3% over conventional super critical unit using similar coal.

Development of Advance Ultra Super Critical Technology: Company has entered into an MOU with BHEL and Indira Gandhi Centre for Atomic Research (IGCAR) for indigenous development of advanced ultra-super critical technology. This will have enhanced efficiency of around 46% and about 18% less CO₂ emission per unit of power generation as compared to 500 MW sub-critical thermal power units. The program is targeted to deliver a plant having 800 MW unit with steam parameters of 310 Kg/cm², 710°C / 720°C. Approval of Phase-I (R&D phase) of the project is under consideration of Government of India.

2. Increasing share of non- fossil fuel based generation

Company intends to have a more diversified fuel mix based on Coal, Gas, Hydro, Nuclear and Renewable energy sources. NTPC has also commenced preparatory work for setting up of wind farms and solar projects in addition to hydro power plants.

3. Centre for Power Efficiency & Environmental Protection (CenPEEP)

Company initiated a unique voluntary program of GHG emission reduction by establishing Center for Power Efficiency and Environmental Protection (CenPEEP) and under this program, it is estimated that cumulative CO₂ avoided is 40.25 million tons since 1996.

Our company as pioneer in Environment monitoring has already installed Ambient Air Quality Monitoring Stations (AAQMS) employing NO_x, SO_x, CO, SPM and RSPM analysers in 20 operating stations in FY-2010 and data is made available to CPCB. Similarly, Continuous Emission Monitoring System (CEMS) employing NO_x, SO_x, CO and CO₂ analysers at stack for flue gas have been installing recently in various operating stations. The company has recently introduced analysers for Mercury monitoring for both AAQMS and CEMS.

CenPEEP is coordinating the implementation of 'Perform, Achieve & Trade (PAT) Scheme' under Prime Minister's National Mission on Enhanced Energy Efficiency (NMEEE) wherein 22 stations of the Company are Designated Consumers (DC). Based on the gap analysis, station specific action plans were prepared & implemented for efficiency improvement and reduction in auxiliary power to achieve the PAT targets.

Thrust has been given for efficiency improvement and sustenance through strategic initiatives Energy Efficiency Management System (EEMS), and reliability Improvement through Reliability Centered Maintenance (RCM) and PdM system. A pool of over 350 certified Energy Auditors has been created in the Company, helping in the culture of energy conservation. A dedicated group CEETEM – Centre for Energy Efficient Technology & Energy Management, coordinates regular Energy audits to induce focused actions and activities for improvement.

4. Afforestation

NTPC gives special thrust to afforestation and Green belt development at all its projects, covering vast tracks of land in and around the project. At some of the projects (like Rihand and National Capital Power Project), NTPC has converted the barren stretches of land in lush green environment. These areas along with the water reservoirs and lakes wherever available, attract a wide variety of fauna including avian species and act as their habitats.

NTPC has planted more than 23 million trees till 31.03.2016 throughout the country which has helped as a 'sink' for CO₂ released from the stations and thereby protecting the quality of ecology and environment.

5. Clean Development Mechanism

NTPC is pioneer in addressing climate change issues proactively. The company has taken several initiatives in CDM projects in Power Sector. NTPC has gone ahead with six projects in the CDM foray, apart from new methodology development for grid connected super critical power plant.

8 MW small hydro power project at NTPC-Singrauli has been registered with United Nations Framework Convention on Climate Change (UNFCCC) CDM Executive board with the estimated 48,629 CERs. This is first of its kind project in India.

One large scale solar project i.e. 50 MW Solar PV Plant at Rajgarh (MP) and three small scale solar projects i.e. 5 MW Solar PV Power Project at NTPC-Dadri, 5 MW Solar PV Power Project at Port Blair (A&N) and 5 MW Solar PV Power Project at NTPC-Faridabad have been registered with UNFCCC CDM Executive Board as stand alone projects.

Further, 10 MW Solar PV Power project at NTPC-Unchahar has been registered in UNFCCC CDM Programme of Activities (PoA). The above six registered projects are having potential to generate approx. 1,57,038 Certified Emission Reductions (CERs) per annum.

6173 nos of CERs for 5 MW Solar PV Power Project at Port Blair (A&N) and 5842 nos of CERs for 5 MW Solar PV Power Project at NTPC - Dadri have already been issued by UNFCCC CDM Executive Board. Further, Designated Operational Entity (DOE) for 5 MW Solar PV Power Project at NTPC - Faridabad has been appointed for Issuance of CERs from UNFCCC CDM Executive Board.

Around 70,000 tCO₂ /annum is being Reduced by 3 Solar projects at NTPC Dadri, NTPC Faridabad, Port Blair and 8 MW Hydro project at NTPC Singrauli during the reporting period.

7 (Seven) of its projects viz. North-Karanpura STPP, Tapovan Vishnugad HEPP, 8 MW Small hydro power project at NTPC Singrauli, 5 MW Solar PV power project at NTPC-Dadri, 5 MW Solar PV power Project at NTPC-Faridabad, 5 MW Solar PV power project at Port Blair (A&N) & 50 MW Solar PV Plant at Rajgarh (MP) have got Host Country Approval (HCA) from National CDM Authority (NCDMA).

6. Renewable Energy & Distributed Generation

Renewable energy technologies also offer an environmentally clean and low noise source of power.

NTPC plans to broad-base generation mix by evaluating conventional and alternate sources of energy to ensure long term competitiveness and mitigate fuel risks.

Company has committed to develop 10 GW of Renewable Energy Projects under green Energy Commitment to Govt. of India. Company has already commissioned 360 MW of solar projects as on 30th June 2016. 560 MW Solar Power Projects are under execution which includes Mandsaur Solar (250 MW), Bhadla Solar (260 MW) and Anantpur Solar (50 MW). NITs have been issued for 1850 MW of Solar PV projects to be set up in the state of Andhra Pradesh and Karnataka. Brief status of NTPC's Renewable Energy Projects are as follows:



NTPC's Foray in Renewables-Dadri Solar PV

Solar Projects commissioned -360 MW

S.N.	Solar PV Project	State/UT	Capacity (MW)
1.	Dadri	Uttar Pradesh	5
2.	Port Blair	Andaman & Nicobar Islands	5
3.	Ramagundam	Telangana	10
4.	Talcher Kaniha	Odisha	10
5.	Faridabad	Haryana	5
6.	Unchahar	Uttar Pradesh	10
7.	Rajgarh	Madhya Pradesh	50
8.	Singrauli	Uttar Pradesh	15
9.	Ananthapuram	Andhra Pradesh	250
		Total	360

Solar Power Projects (EPC Mode) under execution:

S N	Solar PV Project	State/UT	Capacity (MW)	Expected
1.	Bhadla	Rajasthan	260	March 2017
2.	Mandsaur	Madhya Pradesh	250	March 2017

Solar Power Projects being coordinated under Developer Mode (NSM Phase-II, Batch-II,Tranche-I)

S.N.	Solar PV Project	State/UT	Capacity (MW)
1	Kurnool Ultra Mega Solar Park	Andhra Pradesh	1000
2	Bhadla Solar Park Ph-II	Rajasthan	420
3	Pavagada Solar Park	Karnataka	600
4	Kadapa Ultra Mega Solar Park	Karnataka	250
5	(Non Solar Park)	Rajasthan	230
6	(Non Solar Park)	Uttar Pradesh	100
7	(Non Solar Park)	Telangana	400
		Total	3000

NTPC has signed an MOU with MNRE, National Institute of Wind Energy (NIWE), Powergrid, PFC, IREDA, PTC and GPCL to form a joint venture company for offshore wind power development in India. JV Agreement has been approved by your Board and approval is awaited from other partners. The Company has also signed an MOU with Chattisgarh Renewable Energy Development Agency (CREDA) for development of Tatapani Geothermal project in Chattisgarh.

Considering the massive potential of renewable energy in the country and the incentives doled out by Gol, the targets looks achievable but not before overcoming several challenges like:

- High cost of renewable power.
- Financing the huge capacity, given the offtake risks due to poor financial health of buyers.
- Enforcing renewables purchase obligations.
- Huge land requirement.
- Parallel investment in infrastructure for evacuation of power.
- Ensuring grid stability.
- Flexible grid.
- Thermal backup when renewable is offline etc.

NTPC has not carried out the quantification of financial implications on business due to its complex nature of climatic risks. However, the Company has determined financial implications due to constantly increasing coal costs. Suitable measures like energy conservation, process modification, etc. are in place for reducing the impact of increased coal cost on cost of electricity supply.

The Board of Directors of NTPC Limited in its meeting held on 31st October 2014 approved the proposal for voluntary

winding up of Pan-Asian Renewables Private Ltd. (a Joint Venture of the Company). Accordingly, a liquidator has been appointed for dissolution of the Company. The liquidation process is underway. Pending winding-up, provision of ₹1.28 crore (previous year ₹1.28 crore) towards the diminution in the value of investment has been made based on the audited accounts of Pan-Asian Renewables Private Ltd.

PAT: Perform, Achieve & Trade

PAT (Perform, Achieve and Trade) is one of the schemes of National Mission on Enhanced Energy Efficiency (NMEEE). It is a market based mechanism to enhance cost effectiveness of improvements in energy efficiency, in energy intensive large industries and facilities, through certification of energy savings that could be traded.

PAT is a multi-cycle program. The first cycle of PAT which started in April 2012, had completed in March 2015. BEE (Bureau of Energy Efficiency) is the nodal agency for implementation of PAT.

144 thermal and gas power plants, including 22 NTPC coal & gas Power stations, are identified as designated consumers. It is mandatory for designated consumers to implement PAT efficiency improvement programme.

A specific energy saving target has been mandated on the basis of baseline period performance for all NTPC stations. PAT targets of Net Heat Rate (NHR) improvement for the NTPC stations vary from 9 to 66 kcal/kWh for coal stations, and 3 to 27 kcal/kWh for gas stations.

For one ton of oil equivalent of energy savings, over and above the target savings, one Energy Saving Certificate (ESCert) will be issued by BEE, after verification of improvement by accredited auditor. Each certificate will be a unique tradable commodity.

For ESCerts calculation, the targets have been converted to 'ton of oil' equivalent. For NTPC, targets are 0.292 million ton of oil equivalent (mtoe) for coal stations and 0.027 mtoe for gas stations - the total for NTPC being 0.319 mtoe.

First PAT Cycle is completed. Each designated consumer's performance has been assessed through M&V (Measurement and Verification) audit and, after normalization of performance for external factors, actual achievements declared. NTPC has exceeded the targets and earned about 16900 ESCerts. The formal notification is yet to be issued. Notification for trading of ESCerts has come. CERC is the Nodal agency for trading of ESCerts for power utilities.

Second PAT cycle has started form April'16 and it will be completed in March'19. All DC has been given the target for PAT Cycle-II.

Precautionary Approach

NTPC has an Environment Management Group (EMG) at Corporate as well as stations, for managing compliances as a part of precautionary approach to prevent any non-compliance. The Core processes of Environment Management Groups are monitoring & meeting the Environmental statutory requirement like compliances of Environmental clearance conditions stipulated, renewal of consents, complying consent conditions, pollution control and environmental monitoring, ensure the compliances of rules & acts applicable under Environment Protection Act 1986. Threat perceptions are reviewed through risk management mechanism, comprising of concerned directors of the Company.

WATER

NTPC is a responsible user of limited natural resources. To conserve water and control the quality of effluent, NTPC has implemented various water conservations measures in Power plant by using 3R's (Reduce, Recycle & Reuse). Fresh water is being drawn by NTPC stations from various water bodies such as rivers, reservoirs, canals etc. Water is withdrawn as per contractual agreements with state authorities. No ground water is used. NTPC takes care not to withdraw water from such water bodies which are recognized as environmentally sensitive due to their relative size & location, to protect the endangered species.

Water consumption is being monitored by online water metering systems by our stations which are also being monitored by SPCB (State Pollution Control Board) and State water resource department. Some of the water conservation initiatives being undertaken by NTPC are:

- Recycling of water by increasing CoC (Cycle of Concentration) up to 5 or more.
- Adopting Rain Water Harvesting for water conservation.
- Recycle & Reuse of plant effluent and Sewage effluent.
- Ash Water Recirculation System (AWRS) is used for purpose of ash slurry make up etc. and recycling 100% plant effluent at facilities :

Liquid Waste Treatment Plant (LWTP): The effluent generated from various sources in the plant such as Coal handling plant, main plant area etc. are collected to central monitoring basin of LWTP. The collected effluent is then analyzed for quality within the prescribed norms.

Sewage Treatment Plant (STP): Sewage Treatment Plants have been provided for treatment and reuse of sewage effluent from plant, as well as townships. The effluent quality is being monitored regularly and treated effluent is used further in horticulture purposes in the NTPC premises.

Ash Water Recirculation System (AWRS): NTPC station has installed AWRS for optimization of water consumption in a closed cycle and achieving the zero liquid discharge from ash ponds. The effluent from ash pond is re-circulated back to the plant for further ash slurry makeup and again sluicing to the ash pond. Some old NTPC stations such as Singrauli, Tanda and Talcher Thermal plants, where AWRS was not provided initially, has been installed now to reduce water consumption as well as effluent discharge.

Water withdrawal in a closed-cycle thermal power plant would be potentially less than the withdrawal in an open-cycle system. In NTPC, total water withdrawal in FY-2016 in closed cycle is 3.33 Lt./kWh whereas 18.44 Lt./kWh in open cycle as shown in graph.

It can also be observed that total water withdrawal is decreasing during the last five years because of adopting the zero discharge and water conservation technologies such as rain water harvesting etc. None of the water sources are significantly affected due to water withdrawn by NTPC Stations.



PRESERVING THE BIODIVERSITY



NTPC is committed to conduct its operations in a way that promotes the maintenance of regional bio-diversity and the habitat upon which it depends, through a coordinated and comprehensive program of avoidance, minimization and mitigation of its impacts.

Bio-diversity conservation helps in the survival of many species and habitats which are endangered due to human activities in and around the NTPC power stations. This also secures valuable natural resources for our future generation. Any developmental activity should be in a sustainable manner which requires a balance between economic, social and environmental concerns.

NTPC also has the site selection procedure before finalization of project location and before starting the project construction activity so as to avoid the protected areas, or the areas of high bio-diversity outside the protected areas. As a result, NTPC do not have any impact on IUCN Red List Species and National Conservation List Species and their habitats. NTPC is recycling the treated effluents for reuse back to the plant by NTPC Power stations and not discharging the effluent in any protected water body. Further, it is also pertinent to mention that NTPC complies the bio-diversity conservation act notified by Govt. of India.

Following NTPC projects were declared near wildlife sanctuaries within 10 kms, after the project was accorded environmental clearance or constructed as per MoEF notification:

1. Kahalgaon Station: The stretch of river Ganga, adjacent to the project, was declared a sanctuary by the State Govt. after the project was accorded environmental clearance by the Ministry of Environment and Forests, and the construction of the project was nearing completion.

2. Badarpur Thermal Power Project: Okhla Bird Sanctuary and Asola Bhatti Wildlife Sanctuary were declared as sanctuaries by the State Govts. (Uttar Pradesh and Delhi Govts., respectively) after almost a decade of commissioning of the project.

3. Feroz Gandhi Unchahar Thermal Power Station: Samaspur Bird Sanctuary was established by the State Govt. in 1987 much after the project construction was started by the UP State Electricity Board in 1981. NTPC took over the project in 1992.

Further, none of the above thermal projects/ any part of them is located within the sanctuary. No water bodies and habitats with bio-diversity value is significantly affected by the organisation's discharge of water.

NTPC commissioned its first Hydro Power Project in FY-2016, which was taken over from HPSEB. Though not mentioned by HPSEB at the time of take-over, it was later discovered that part of the submergence area (124.054 Ha out of 1357 Ha), is located within the Majathal Wildlife Sanctuary, for which wildlife clearance has been obtained.

Majathal Sanctuary is based in Shimla and Solan Districts of Himachal Pradesh. It is located about 10 km Karaghat

(Shimla-Bilaspur Highway) to Kashlog, at an altitude of 900 to 1,966 m above sea level. It was established in 1962 (first notified) and March 1974 (re-notified). After rationalization in 2013, the area of the sanctuary is 30.86 Sq. km. This sanctuary spreads across very steep and rugged Himalayan terrains, which shelters rare breeds like Gorals and Cheer Pheasants. A few other animals to be seen here are, Leopard, Black Bear, Barking Deer, Jungle cat, Himalayan palm civet and Langur etc. Birders can keep their eyes open for species like White Beaked Vulture, Black Francolin and Kaleej pheasants etc.

In order to offset the loss of habitats due to intrusion of submergence area of Koldam HEPP (to the extent of 1.24 sq. km), NTPC has already purchased and handed over an area of 5 sq. km as Cheer pheasant habitat to State Government. The area was identified in consultation with Wild Life Institute of India and Chief Wild Life Warden, Himachal Pradesh. In addition, State Forest Department of Himachal Pradesh has also identified another 10 sq. km wild life habitat, in consultation with Wild Life Institute of India and notified the same as a Sanctuary. The above is in addition to compensatory afforestation on 2000 Ha of degraded forest land plantation around the rim of the reservoir and various activities including plantation under Catchment Area Treatment Plant for the project.

NTPC is committed to minimize impacts on bio-diversity through following measures:

- Minimizing the land requirement for power plants.
- Compliance with the siting criteria for thermal power plants published by MOEF at the time of site selection.
- Locating the power plants away from protected areas (like national parks and wildlife sanctuaries) or non-protected areas rich in bio-diversity.
- Avoiding acquisition of forest land for the project, as far as possible & carrying out compensatory afforestation wherever forest land is involved.
- Detailed environmental impact assessment study before construction of a project and implementation of environmental management plan during construction and operation phases.
- Site specific ecological assessment studies as and when required and ecological improvements and habitat enhancement through afforestation and creation of water bodies.
- Preparation and implementation of CAT plan for HEPPs.
- Implementation of wildlife conservation and management plan.

EMISSION

Stack Emissions

Thermal power stations are also a source of pollution. The emissions from coal based power plants are mainly Carbon Dioxide (CO₂) (GHG) and also Particulate Matter (PM), Sulphur-Di-Oxide (SO₂) and Oxides of Nitrogen (NO_x). NTPC stations have taken several measures to minimise emission levels. Continuous on-line data goes to regulators & is monitored at our for the pollutants e.g. Stack- Particulate Matter, SO_x & NO_x, Ambient-SO_x, NO_x, PM10, PM2.5 levels. Effluents-pH, TSS, temp measurements.

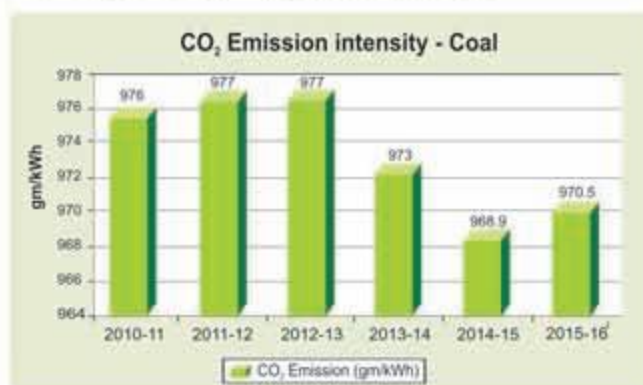
Some significant steps undertaken for reduction in GHG and pollutant emissions are described below :

Reduction in GHG emission

For controlling the particulate matter (PM) from stack, NTPC has installed high efficiency (99.9%) ESPs in all coal based power stations with high stack for minimization of ground level concentration of particulate matter. While we do not have any regulatory norms for SO₂ & NO_x till now, but NTPC is installing the FGD (Flue Gas De-Sulphurisation) system in some of our coal based power stations such as Bogaigaon & Vindhyachal Stage-V for base line for controlling SO₂, as a precautionary approach inline with the guidelines of CEA & MoEF, Govt. of India.

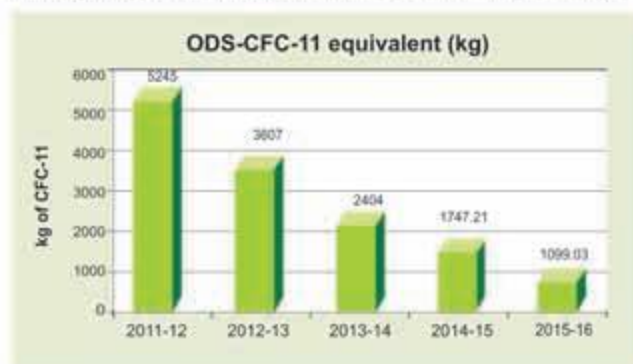
Thermal Power Plants are one of the source of CO₂ emission. NTPC has taken various steps to control & reduce the CO₂ emission intensity from coal based power plants, by enhancing the thermal power efficiency using technologies through installation of ultra-super critical units in greenfield projects to reduce its CO₂ emission intensity, we are in line with the Company's Environment Management Philosophy, **'Going Higher on Generation, lowering GHG intensity'**.

There is a decreasing trend in CO₂ emission intensity of coal stations since FY-2012 as shown in the graph. NTPC has installed advanced and high efficiency (99.9 %) technologies which are available for controlling GHGs emission, such as going for construction of ultra-super critical units for green field projects. The Company is also planning & designing for its upcoming stations for use of beneficiated coal and imported low ash coals.



The above measures are aimed to achieve reduction in pollution and to minimize the use of precious natural resources. This will help to reduce CO₂ emissions, finally reducing global warming. The CO₂ emission are being monitored by newly installed continuous emission monitoring system (CEMS) which are linked on-line with the SPCBs & CPCBs for maintaining transparency with the regulatory agencies.

NTPC is in the process of phasing out the ozone-depleting substances (ODS) by reducing consumption of its use. There is a continuous decreasing trend in ODS consumption since FY-2013 as shown in the graph. Reduction in ODS substances is achieved by replacing ODS substances with less ODS potential substitutes like R-22, R-134A and R-410A.



WASTE MANAGEMENT

NTPC is committed to proper handling and disposal of waste materials. Being a coal based thermal Power Company, the primary waste generated at NTPC is ash. Other wastes generated during operation and maintenance of the plants includes lubricating oil, transformer oil, metal and non-metal scraps etc. In addition, domestic waste is generated in township and bio-medical waste is generated in NTPC hospitals.

Hazardous waste is disposed off to government authorized dealers, in accordance with applicable legislation i.e. "Hazardous Waste (Management & Handling) Rules, 1989 (as amended in 2008). Recyclable wastes and non-recyclable waste are suitably handled. The Hazardous recyclable wastes are being sold to authorized recyclers and non-recyclable wastes are sent to State Pollution Control Board approved Common Treatment, Storage and Disposal Facility (TSDF) or stored in properly identified places or in hazardous waste pits. Small amount of bio-medical waste is generated at NTPC hospitals which are being disposed off as per "Bio-medical Waste (Management & Handling rules-2003) issued by MoEF. Approx. 59,065kg of bio-medical waste was treated and disposed off in NTPC during FY 2014-16. No radioactive waste is generated at NTPC. NTPC is not importing and exporting the hazardous waste which comes under Basel Convention-2 Annex I, II, III, and VIII.

Environmental Performance

The company has adopted an integrated approach to proper handling and disposal of all types of wastes in a scientific manner as detailed in the table below:

Type of Waste	Method of disposal
Lube oil, Transformer oil, Batteries	Sold to registered recyclers or manufacturers under buy-back arrangement.
Ferrous/Non- Ferrous Scrap	Disposed through e-Auctions
Hazardous Waste	Non-recyclable waste sent for Treatment, Storage and Disposal Facility (TSDF), for proper treatment and disposal as per the HWM Rules 2008.
Domestic Waste	<ul style="list-style-type: none"> Waste segregated into biodegradable and non-biodegradable categories. Biodegradable waste is converted into manure through composting/vermi composting/Bio-gas/Bio-methanation process. Bio-methanation plants are operational at NTPC stations. Non-biodegradable waste is being disposed off at identified places.
Bio-Medical Waste	<ul style="list-style-type: none"> Disposed through authorised agencies approved by SPCB.
E- waste	<ul style="list-style-type: none"> Disposed through registered and approved recyclers of CPCB or respective SPCB.
Fly and Bottom Ash	<ul style="list-style-type: none"> Ash issued to user industries such as cement industries, ready mix concrete plants, bricks, blocks manufacturers, tile manufacturers etc. in closed containers/ bulkers Ash used in back filling of coal mines as per the guidelines and environment clearance conditions of MoEF. Ash issued to road embankment construction and low lying area filling as per the guidelines of CPCB. Bottom ash is issued for mine stowing in covered trucks. Manufacturing of ash bricks by own. Fly ash is also issued in bags and transported in bulk quantities through covered railway wagons/ rakes.

Total waste discharge by quality and destination

Most of the stations are designed in the closed cycle system. Regarding plant effluent NTPC is in the process for adopting zero liquid discharge policy from its power station premises, the total quantity and quality of effluent discharge in reporting periods have been provided in below graph.



The NTPC discharge only treated effluent to water bodies from where it is taken.

Oil Spills: During the FY-2015, no oil spillage has been reported by any NTPC stations.



NTPC Vindhyachal - The largest power station of the country

Environmental Performance



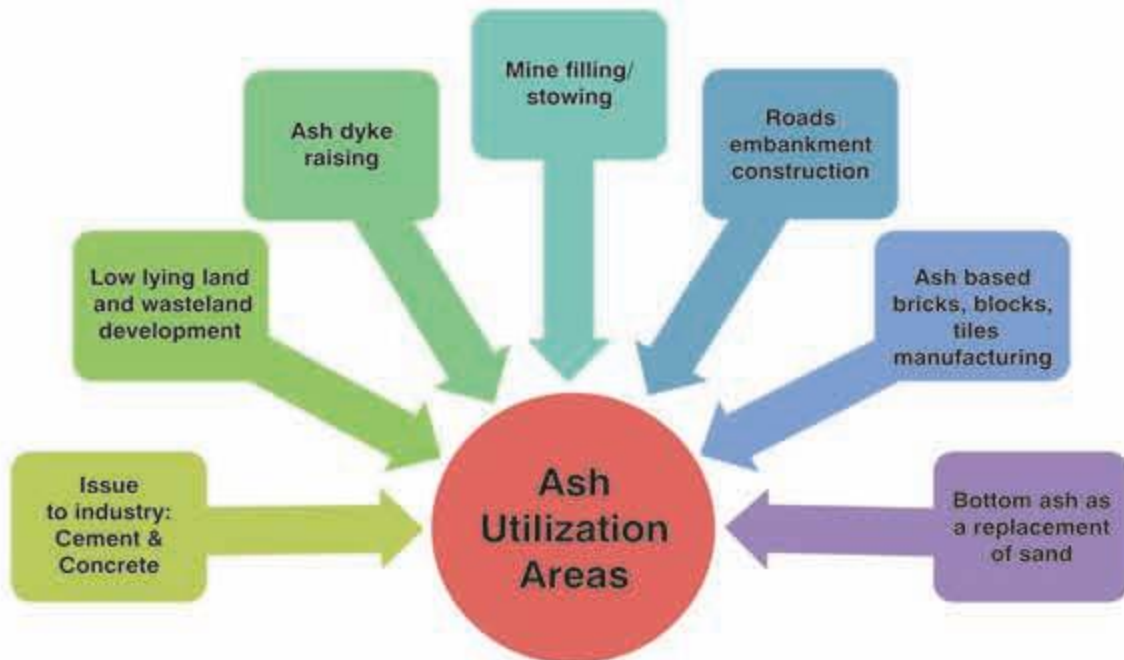
Ash bricks Plant-Dadri



Fly Ash bricks

ASH MANAGEMENT

In India, coal as a fuel would remain the main source for power generation. The prime concern for coal based power plants is the quality of Indian coal, which has higher ash content (30-45%), resulting in generation of huge amount of ash. Disposal of this ash in ash dykes requires vast areas while the availability of spaces is becoming a progressive challenge at many NTPC stations. Sustainable ash utilization is one of the key concerns of NTPC and the Company strives to maximize the ash utilization in following ways:



Ash dykes, at NTPC stations, are designed to ensure that all environmental concerns are addressed. Salient features for effective handling and disposal of ash are as follows:

Multi-lagoon ash ponds with provision of overflow lagoons.

Ash slurry pipe lines garlanding arrangement for change-over of ash slurry feed points.

Water sprinklers for spraying water in dried up portion of lagoons for control of fugitive dust.

Monthly ash dyke inspection by cross-functional committee at each station for proper monitoring of dyke health.

Proper raising plan for dyke, as per requirement, prepared in advance for individual stations keeping in mind the expected ash generation and its utilization potential.

During FY-2016, 588.28 lakh tonnes of ash was generated and 41.35% viz. 243.24 lakh tonnes of ash had been utilized for various productive purposes.

Pond ash from all stations of the Company is being issued free of cost to all users. Fly ash is also being issued free of cost to fly ash/ clay-fly ash bricks, blocks and tiles manufacturers on priority basis, over the other users from all coal based thermal power stations. The funds collected from sale of ash up to Dec'14 was being maintained by NVVN, a wholly owned NTPC subsidiary company. Now this fund has been transferred to the Company and is being maintained in a separate account. This fund is being utilized for development of infrastructure facilities, promotion and facilitation activities to enhance ash utilization.

NTPC has also introduced Ash Policy, which is a vision document dealing with the ash utilization issue in an integral way from generation to end product. This policy aims at

maximizing utilization of ash for productive usage alongwith fulfilling social and environmental obligations, as a green initiative in protecting the nature and giving a better environment to future generations.

Several initiatives have been taken for enhancing ash utilization level, such as:

- Augmentation of dry fly ash extraction and storage system.
- Creating rail loading facility and transportation of fly ash in bulk quantity through Indian Railway
- Fly ash bagging facility
- Entering into agreement with cement and other ash user agencies
- Low lying area development outside of NTPC to save good earth
- Creating awareness about ash based products through newspapers, brochures, documentary films etc.
- Organizing workshops for potential users to motivate them for increase in ash utilization.

NTPC uses only ash based bricks and Fly Ash Portland Pozzolana Cement (FAPPC) in most of its construction activities in all expansion projects as well as in green field projects. Ash brick manufacturing plants have been set up at all NTPC stations. More than 900 million ash bricks have been manufactured by these plants for use in construction activities.

NTPC Unchahar, Tanda & Rihand are augmenting ash brick manufacturing capacity by setting up additional units. NTPC Mouda also have setup new ash bricks manufacturing Plants in FY-2016.

Entire ash generated is being disposed in an environment friendly manner and without any impact on environment due to transportation of ash.

New initiatives for ash utilization

- Setting up of demonstration plant for manufacturing of Light Weight Aggregate (LWA) from ash.
- Study on use of fly ash for geo-polymer concrete for road pavement construction and manufacture of blocks for stabilization of coastline areas.
- Efforts are being made with Bureau of Indian Standard for developing code for use of LWA in structural concrete.
- Pursuing NHAI authority for use of ash in road construction projects of NHAI.
- Follow up with coal companies for allocation of mine voids for its reclamation, using ash.
- Research and demonstration project for manufacturing of artificial sand from fly ash.
- Proposal of bulk transporters of fly ash through railway wagon for cement and other industries.
- Demonstration study on Fly Ash use in agriculture for sustainable crops products.
- Effort being made with BIS for issue of cement based fly ash brick specification, so as to make available quality fly ash bricks for construction.

ENVIRONMENTAL COMPLIANCE

NTPC is legally bound by the environmental laws and regulations formulated by statutory agencies. Hence the company continuously strives to achieve 100% compliance, with least cost and technically feasible engineering solutions, to ensure compliances in a time bound manner. Before commissioning of any project NTPC conducts EIA studies; wherein, an environmental management plan is prepared for mitigation measures of the possible impacts; and management transparently monitors environmental issue during construction as well as operation stage of any station. NTPC sincerely follows 100% regulatory guidelines to provide environmental friendly power.

Due to increasingly stringent environment norms, the company requires Renovation & Modernization (R&M) of pollution control technologies /devices of its old running units. Accordingly, NTPC is able to comply all the directives of legal authorities with the R&M activities and there are no fines imposed upon NTPC by any regulatory agencies/authorities on environmental issues. However, some NTPC stations were issued specific directives to make action plan for mitigation, backed by Bank guarantee (BG) as mentioned below:

Station	Korba	Barh	Talcher Kaniha TPS	Talcher Thermal	Kahalgaon	Mauda
Bank Guarantee(BG) (In ₹ Lakhs)	2760	10	1340	97.7	25	54

OTHER ENVIRONMENTAL ASPECTS

Product and Services

The scope of NTPC is to generate power and to make it available up to its own switch-yard. From switch-yard, the electricity is transmitted for distribution through overhead transmission lines which are out of scope of NTPC. Therefore, environmental impacts of electrical power beyond NTPC switch-yards are not in purview of NTPC.

No packaging material is used in electricity transmission. Impacts of electricity transmission beyond NTPC switch-yards are also not in purview of NTPC.

Supplier Assessment

NTPC is very sincere to take care of environmental issues and do not have any significant environmental actual

impacts in the supply chain process. However, NTPC follows the procedure of environmental guidelines during the raw material transportation and consumption through the supply chain. There is no negative impact of supply chain on society and environment.

Major suppliers of NTPC are BHEL, Coal India, GAIL and other multinational OEM suppliers and they are bound to comply with Environmental, Human rights, Economic, Society, Labour practice norms as per the NTPC Policies and requirements. Same is also being monitored by NTPC stations during the supply chain process. All existing as well as new suppliers are compulsorily bound to meet the environmental, social and labour norms of regulatory agencies. Being an organization of high repute, credibility and holding business ethical values, the Company has a banning policy for business dealings. The company does not endure any sort of deception found or other misconduct of whatever nature in the tendering process or execution by any of the suppliers. NTPC also reviews suppliers' labour practices regarding minimum wages, PF, ESI etc. Company does not endure violation of labour laws and human rights.

During the years 2014-16, no major grievances on environmental issue was raised. The localised issues were addressed and resolved.

Environmental Expenditure

Total expenditure incurred on environment protection in FY-2015 & FY-2016 are 961.64 & 742.86 crores. The major environmental expenditure incurred are for Afforestation, Environmental studies, Waste Management, Bio-diversity conservation projects, Water management etc.



NTPC's efforts towards sustainable future

Social Performance

12

HUMAN RIGHTS

NTPC respects human rights and makes conscious efforts to safeguard it. The company privately and publicly condemn any instances of systematic and continuous human rights violation anywhere in the world. Constant consultation within and outside the company with relevant stakeholders including contractors is done as a part of human rights due diligence process. To help our employees understand and inculcate the importance of human rights, the company also conducts training sessions on the same. Training for human rights accounted for 30,214 Man Hours and 16.84% of employees were trained during FY-2015 and 35,536 Man Hours and 17.74% of employees were trained during FY - 2016

As far as issue of Human Rights for external stakeholders is concerned specially with respect to Project Affected Families (PAF), adequate transparency is maintained in the dealings and with a focused approach on Consultation and Participation mechanisms. Special provisions for vulnerable community also find a mention in the relevant policies. In addition to individual benefits, a comprehensive community development is also undertaken. Institutional mechanisms are also in place for Grievance redressal. Human rights are adequately addressed and possibility of any violation is minimal. Impact assessments form a routine activity in the social policies for external stakeholders. All significant investment agreements and contracts are included human rights clauses.

Freedom of association and effective recognition of the right to collective bargaining

NTPC is one of the most preferred employers in the



country and its employees enjoy complete freedom of association. The practices as regards the collective bargaining rights of workmen are in synchronization with the provisions of Trade Unions Act, the governing statute on the issue.

The workforce in the unionised category has got right to organize, which is creation of a statute. Even the executives have formed associations at almost all the projects/ stations and regular interactions are held with all the employees/ representative bodies at Project, Regional and Apex level. Accordingly, mechanism is in place so as to hold bipartite meetings which is inter alia aimed at getting employee inputs on conditions of employment, despite the fact that electricity generation is an essential service where in right to strike is prohibited.

Contractor workforce have been employed by their respective contractor. Locations where a trade union of contractor workers exists, such unions are also represented by their respective central trade union. Such central trade union take part in country or regulatory regime level collective bargaining process.

Prevention of discrimination at the workplace

NTPC promotes equality and diversity amongst its employees. It has been providing equal opportunity to its women employees and minorities at all levels since its inception. Statutory requirements and policy guidelines are adhered to without any discrimination. The company makes no distinction on basis of caste, creed, color, gender and religion. There was no incident of discrimination in the reporting period.

Prohibiting child labour and preventing forced and compulsory labour

As a responsible corporate citizen, NTPC is very

much conscious of the demeaning effect of child labour and it ensures the prohibition of the same in its plants and offices. The company service rules stipulate that minimum age for employment in NTPC is 18 years. The bidding/contract documents etc. also explicitly prohibit engagement of child labor. Further, NTPC's plants being high security installations, the entry inside is regulated through issue of security gate pass for workers. Thorough preventive check is done at the time of issuing gate passes to ensure that no contracting agency deploys child labour in NTPC's premises.

NTPC cherishes freedom of every kind enshrined in the constitution of India including zero tolerance for forced or compulsory labour. The manpower working in NTPC enjoys complete freedom to join and leave the organization as per its own volition. The company not only adheres to international conventions and statutory provisions on employment, but also constantly upgrades its practices on employee engagement, as per emerging scenarios and prevalent best practices. It is pertinent to mention here that a number of NTPC plants/stations are SA 8000 compliant/ certified and as a result, audit/ compliance of various issues like freedom of association and collective bargaining, forced labour, child labour and human rights aspects are well taken care of and documented during the SA 8000 certification/ audit. The company ensures compliance to Factories Act and Labour Laws at all its operations through periodic reviews. None of its operations were found to have risk of child, forced or compulsory labour during the reporting period. No complaint on human rights, such as child labour, forced labour, involuntary labour, sexual harassment, discrimination, rights of the disabled etc. was pending as on 31.03.2016. However, number of forums are available to address any violation of rights to all stakeholders, including human rights.

Indigenous Rights

NTPC projects have till now been located in such areas where no indigenous people exist. Hence, the issue of indigenous rights is not applicable to NTPC. However, NTPC has various provisions for Scheduled Tribes in its social as well as HR policies and actions are taken accordingly.

Security Practices

NTPC has a foolproof security system in tune with the Central Government policy. All the power projects developed by NTPC fall under the critical infrastructure category. A Govt. of India security force CISF is deployed for securing the vital installations in our project sites/power plants. Similarly, ex-servicemen security agencies are deployed in the non-core areas in our sites like project townships etc. duly sponsored by the Directorate General of Resettlement, under Ministry of

Defence as per norms set by the DPE. Though NTPC do not impart any direct training to the referred security personnel, as such, it is understood that before being deployed, they are properly trained in security systems by the Govt. including the Human Rights aspects before their formal induction to the service and also during refresher courses.

Suppliers' Human Rights, Labour Practices, Environmental Assessment

NTPC Limited is a Maharatna company with unblemished record as far as social and societal aspects is concerned. Protection of human rights is one of the important parameters which is taken into account while dealing with any of its stakeholders including suppliers of NTPC. In all contracts/agreements/dealings that NTPC undertakes with its suppliers, the provisions are incorporated in such a way so that there is no scope or possibility of human rights violation. Hence only those suppliers who agree to the revered principles of human right protection are awarded contracts. Also the suppliers of NTPC Limited in general are big corporates with evidently no history of human rights violation. During the reporting period, NTPC has not identified any human rights negative impacts in the supply chain.

NTPC complies the UNGC principle with Human Resource commitment in their all operations at power plants. NTPC formulated policy and systems to ensure protection of Human Resource of all operations. The policy covers issues of child labour, force and compulsory labour, non-discrimination bribery and corruption. NTPC has made the business code of conduct available to all employees, contractor, suppliers etc. available at plant/CC. All the suppliers and contractors are subject to Human Resource reviews on regularly basis.

Grievance Mechanism

Employees grievances and complaints, which are primarily manifestation of their dissatisfaction against their working conditions, managerial decisions etc. if not promptly attended to, may lead to serious situations. For addressing the grievances of employees, NTPC has time bound Grievance Redressal Mechanism for all employees at each project. The employee grievances are also captured through different forums like participative forums, communication meetings, employee organizational climate survey etc.

The objectives of the grievances handling system are:

- To settle grievances of the employees in the shortest possible time and at the lowest possible level of authority.
- To provide for various stages so that the aggrieved employees derive satisfaction of communicating his grievances to the highest level.

Contributing to the upliftment of society around NTPC Stations



SOCIETY

A responsible corporate citizen since inception, NTPC envisions, **"To be the world's largest and best power producer, powering India's Growth"**.

NTPC has always discharged its social responsibility as a part of its Corporate Governance philosophy. It follows the global practice of addressing CSR issues in an integrated multi stake-holder approach, covering the environmental and social aspects.

NTPC's spirit of caring and sharing is embedded in its mission statement. NTPC has a comprehensive Resettlement & Rehabilitation (R&R) policy, covering Community Development (CD) activities, which has been revised and updated from time to time. CD activities in green field areas are initiated as soon as project is conceived and thereafter extensive community / peripheral development activities are taken up along with the project development. A separate CSR- Community Development Policy, formulated in July 2004 & revised in 2014 in line with Companies Act 2013, covers a wide range of activities including implementation of key programmes. NTPC Board has a separate Board Level Committee "Corporate Social Responsibility and Sustainability Committee" for guidance and supervision of its CSR initiatives. All the investments and services are pro-bono engagements.

As most of the stations are primarily located in remote rural areas, NTPC undertook integrated activities in the neighbourhood area of stations, addressing the basic needs like primary education, community health, drinking water, sanitation, vocational training, women empowerment and village infrastructure like roads, community centres etc. NTPC's intervention has improved the various facets of lives of the neighbourhood communities. Our efforts have contributed for poverty alleviation and increase of per capita income in neighbourhood villages. There is no significant negative impact on local communities due to organization's operations. The economic development index is much higher in these areas when compared to district and state level development. In addition, NTPC employees participate in various activities through Employee Voluntary



Community toilet in saraswati village at Vindhyachal

Organization for Initiative in Community Empowerment (EVOICE). Preference for CSR & Sustainability activities is given to local areas (within the district) around NTPC's operations, ensuring that majority CSR funds are spent for activities in local areas. All the products and assets created by NTPC are available to local community irrespective of caste, creed, and income group. NTPC takes up special interventions for helping those with low income group.

In line with section 135 of the Companies Act 2013, the company has enhanced allocation for CSR and Sustainable Development activities to 2% of the average of net profit of previous 3 years with effect from financial year 2014-15. A total expenditure of ₹ 205.18 crores was incurred during the FY - 2015 and ₹ 491.80 crores was incurred during FY - 2016 towards Corporate Social Responsibility.

NTPC, being a member of Global Compact Network, India; confirms its involvement in various CSR activities in line with 10 Global Compact principles and shares its experience with the representatives of the world through Communication on Progress (COP). It submits COP to United Nations Global Compact on regular basis. CSR & Sustainability projects/activities are generally formulated based on Need Assessment Surveys (NAS) and/or inputs from Panchayat, District Administration, neighbourhood community and various stakeholders including public representatives, Village Development Advisory Committee (VDAC) and other participatory forums etc. Normally NAS is conducted every 05 years for each of the location.

Initiatives for Inclusive Growth



Social Performance

Some of the key areas in which CSR initiatives have been taken are as follows:

Education

Subsidized education to children of about 20 schools run by NTPC, predominantly for community children, benefitting about 20,000 students of neighbourhood areas.

Operationalised Mobile Science labs for schools in vicinity of Darlipalli and Pakri Barwadih coal mining Project & Kahalgaon power station

About 29,000 toilets made available in schools covering 17 states and 83 districts under "Swachh Vidyalaya Abhiyan" across the country in FY-2015 and FY-2016.

Merit scholarships to about 4000 students in FY-2015 and 2500 in FY-2016.

Support for construction of classrooms and installation of Solar Street lights at Sadhana Vidhyalaya, village Kannamangala, Ramnagara District, Karnataka

Solar lanterns distributed to nearly 1500 students in FY-2015 and 700 students in FY-2016.

Distribution of uniforms, books, stationery, equipments and infrastructural support covering about 450 schools benefitting more than 40,000 students in FY-2015 and 1300 schools benefitting about 1.5 lakh students in FY-2016 around NTPC stations.

Construction of Industrial Training Institute taken up at Ganjam District, Odisha in FY-2016.

Setting up polytechnic clinic at Kaladungi, Dist. Nainital, Uttarakand.

Health & Sanitation

Subsidized healthcare to the community through 19 company owned hospitals.

Support for equipment to "Impact India Foundation" for Lifeline Express Project (camp) at Dalmau Railway station in District Raebareli, U.P. in FY-2015.

Support provided to District Hospital, Aurangabad, Bihar for procurement of medical equipments for modular ICU in FY-2015.

Construction of Building and purchase of vehicles for Medical Service Centre at Ramkrishna Math, Antpur, Hooghly, West Bengal.

Mobile health clinic covering 80 villages in FY-2015 and 130 villages in FY-2016 providing health care facility at doorsteps to more than 50000 people.

About 170 Medical Health check up camps and 20 eye camps in FY-2015 and 150 health camps and 50 eye camps in FY-2016 were organized at various locations. About 3000 and 4000 surgeries were respectively performed during these camps.

Regular health related initiatives in the communities around NTPC stations benefitting more than 3,00,000 individuals.

Under Sanitation, 130 Individual toilets and 06 community toilets in FY-2015 and , 425 Individual toilets and 08 community toilets in FY-2016 were constructed.

More than 100 Animal Health Camps & other animal health related activities were organized benefitting populations of more than 70 villages in FY-2015 and more than 20 villages in FY-2016.

Infrastructure Strengthening

To promote use of renewable energy, installation of about 3900 Solar Street Lights during FY-2015 and about 1750 Solar Street Lights during FY-2016 was done in villages at various locations across India.

Implemented clean lighting and cooking solutions through IDES (Integrated Domestic Energy System) under CSR in the neighbourhood communities of Barethi Project, Madhya Pradesh and Talcher Kaniha, Odissa benefitting 1000 households in FY-2016.

Illumination & sound System at Grand Road, Puri near Talcher Kaniha in FY-2015.

Construction of Community Parivarthana Bhavans for catering to the needs of SC/ST persons of Prakasam & Guntur Districts of Andhra Pradesh in FY-2015 & FY-2016.

Construction of Community Hall in Vivekanand College, Tundi in District Dhanbad, and Jharkhand in FY-2015 & FY-2016.

Regular infrastructure related CSR activities in the villages around NTPC stations like construction of 35 Community Centres, installation of 132 High Mast Lights/ street lights, and construction & repair of more than 100 Kms of road and other infrastructural developmental activities at various locations covering more than 200 villages during FY-2015 & FY-2016.

Provision of Drinking Water

Installation of about 650 hand-pumps & bore-wells in Jharkhand (Garhwa, Girdih and Dhanbad districts); Uttar Pradesh (Raebareli, Siddharth Nagar, Jaunpur and Santravidas Nagar districts) and Bihar (Arrah and Darbhanga districts) and other locations near NTPC operations in FY-2015 and 120 hand pumps in FY-2016.

Piped water scheme and RO plants provided at 54 locations in FY-2015 and 30 piped water schemes and renovation and digging of about 20 water bodies taken up in FY-2016.

Installation of about 80 tube wells/ bore wells, about 20 RO Plants and distribution of 780 water filters in various villages/schools near NTPC Operations in FY-2016.

Regular water related CSR activities around its stations covered close to 150 villages during FY-2015 & FY-2016.

Supply of water through water tankers during extreme summers, relieved close to 45,000 individuals of 40 villages, every financial year.

Imparting Vocational Training

Training to about 4000 students during FY-2015 and 3100 students during FY-2016 in 18 adopted ITIs partnering with State and Central Governments, located at various locations, all across India.

Regular vocational training related CSR activities in communities around NTPC stations covered about 200 villages, benefitting amongst others close to 700 youths in FY-2015 & 1400 youths in FY-2016.

Construction of Weavers Blocks of Common Facility Centre (CFC) in Handloom Park at Chanderi, District, Ashok Nagar, Madhya Pradesh during FY-2015 & FY-2016.

Skill development projects through NSDC provided Skill upgradation training to 2960 youth during FY-2016 across NTPC locations in line with Govt. of India program of Skill India during the reporting period.

Social Performance

Women Empowerment

Construction of Ladies waiting room & purchase of furniture at Government Women's Polytechnic Nedupuzha, Thrissur Kerala in FY-2015 and FY-2016.

More than 2000 women during FY-2015 and 3200 women during FY-2016 were imparted training in various vocational courses like sewing, beautician, food processing etc. for self employability. Provided tool kits & sewing machines to approximately 450 women and 650 women after successful training in FY-2015 and FY-2016 respectively.

Arts, Culture And Sports

Taking up Preservation and conservation of 3 monuments [Group of Monuments, Mandu (MP), Excavated site at Vikramshila (Bihar) and Archaeological site, Lalitgiri (Odisha)] in association with Archeological Survey of India (ASI) and National Culture Fund (NCF).

To promote traditional art & culture, NTPC has taken up various art & culture activities covering about 100 villages are taken every year.

Rural Sports Meet and various sports events covered nearly 200 schools of about 175 villages during FY - 2015 and 300 schools of about 285 villages during FY-2016.

Funds allocated for construction of Sports Complex at Badarpur Thermal Power Station for community in FY-2015.

Financial assistance has been provided for developing Brahma Jahari Forest in Chaumuha in Mathura Distt. in FY-2016.

Natural Calamities

Financial Support for relief during Hudhud Cyclone and floods affected areas of Andhra Pradesh in FY-2015.

Financial support for Uttarakhand Flood Relief Projects in FY-2015.

Financial support and flood & drought relief activities at various affected region by nearby NTPC stations in FY-2015.



Program for senior management conducted at PMI

People with
Special Ability

Provision for IT education to physically & visually challenged students, apart from Information and Communication Technology (ICT) centres earlier at Delhi University and established four Govt. Blind Schools at Ajmer, Lucknow, Thiruvananthapuram and Mysore, New ICT Centres established at Guwahati University, Guwahati and Devi Ahilya Vishwavidyalaya, Indore which benefited approximately 40 students during FY-2015 and 32 students in FY-2016.

Directly observed treatment cum Designated Microscopy Centre (DOTs cum DMC) with Mobile ambulance facilities being operated at 11 NTPC hospitals under Revised National Tuberculosis Control Programme (RNCTP) that cater to villages upto 25-30 Km which have benefited about 5000 cases every year during the reporting period.

Disability Rehabilitation Centre (DRC) at NTPC Tanda, Rihand, Korba, Dadri and Bongaigaon established in collaboration with National Institute for the Orthopaedically Handicapped (NIOH), under the Ministry of Social Justice and Empowerment, Government of India has benefitted more than 3200 physically challenged people every year during the reporting period.

Support provided to Air Force Wives Welfare Association (AFWWA) for purchasing speech therapy equipment for Umeed Asha Kiran School run by AFWWA for differently-able children in FY-2016.

High-End Prosthetic & Orthotic Artificial limbs provided to 14 poor and needy persons with disability in Mumbai through ALIMCO during FY-2016.

Distribution of equipment and appliances to about 100 Physically Challenged Persons and activities like inclusive education & vocational training benefitting about 800 PCP in about 250 villages all across NTPC locations in FY-2016.

Local Communities

As a socially responsible entity, NTPC has been sensitive to the needs and aspirations of the Project Affected Persons (PAPs). NTPC always tries to avoid acquisition of homestead to the extent possible. However, in case of physical displacement, the corporation is passionate about ensuring that sense of displacement felt in the local communities is minimal and accordingly, the Company has always tried for the best possible R&R package for the PAPs based on respective State Government R&R Policy and Government of India Guidelines or as decided in Village Development Advisory Committees (VDAC) other similar meeting of participative mechanisms. Such stakeholders are mainly Public interest groups affected by the setting up of projects including the neighbouring communities. The initial baseline survey conducted under socio-economic studies carried out prepares a basis for initial stakeholder identification. Public interest groups affected by the setting up of projects have their concerns, needs, aspirations and requirements. The process of Public Hearing and Public Consultations are undertaken prior to the start of construction of the project which, are open to general public, during which they can express their concerns regarding environmental impacts of

the project, socio-economic impacts due to acquisition of land and homesteads, rehabilitation and resettlement programmes, expectations from the project, etc. The comments of the general public are recorded and forwarded to MOEF, which takes them into consideration while according environmental clearance for the project.

Organisation covers 100% of its operation with implemented local community engagement and impact assessments and development programs. The key topics and concerns raised by stakeholders are primarily related to the education, health, drinking water, sanitation, village infrastructure etc. Organization welcomes concerns raised during stakeholder engagement and ensures to take care of the same during planning & implementation of the CSR initiatives. Effectiveness of CSR & Sustainability programme is assessed through both internal & external evaluation. Internal audits are carried out to verify effectiveness of implementation. Social Impact Evaluation (SIE) is done through credible external agencies for gauging impact of CSR & Sustainability initiatives. Findings of SIE form the basis for initiating corrective actions and formulating future schemes/plans. Every two year NTPC conducts a third party Social Impact assessment for all its major CSR activities at various operating stations. During the reporting period, NTPC has taken up Impact Evaluation at 09 stations.

Environmental Decision Making Process

The stakeholders in the environmental decision making process are employees (relevant departments), Consultants (for Environment Impact Assessment (EIA) Studies), Expert Appraisal Committee of MOEF, Central Govt. (MOEF), State Govt. (State Pollution Control Board (SPCB)), Investors (if applicable) and Community.

The process of environmental decision making is done according to the guidelines of MOEF and its appraisal by Expert appraisal committee of MOEF. Also environment appraisal of projects is done by investors, based on EIA reports and clearances granted by MOEF/SPCB.

The above process is aimed at ensuring the following:

- The location of the project is environmentally sustainable and in line with national/ regional policies.
- The construction and operation of the project will be environmentally safe and adequate measures for control of pollution and environmental management have been incorporated in the EIA Report.
- The concerns of local community as well as civil society have been taken into consideration in deciding the future of the project and their concerns have been incorporated in environmental management plan.
- The technical and scientific aspects of the project including the concerns of community have been examined by Expert Appraisal Committee.
- The clearance is accorded by MOEF in accordance with the legal provisions in the country.

The investment approval of the project is accorded only after the environmental clearance is granted by MOEF. NTPC's R&R programs have positively impacted the overall socio-economic development of the stakeholders.

To address social issues at exploratory stage of its prospective Greenfield/Expansion projects and to win the confidence of local population of such projects by way of building positive image of the company, NTPC enters the area by initiating actions in line with its 'Initial Community Development' (ICD) Policy, soon after land and water commitments are received from the respective State Governments for setting up a project. Further, once land boundaries are frozen, detailed Socio-economic surveys are conducted through independent academic institutes of repute, to have a detailed study on the likely social impacts and suggested mitigations measures.

Govt. of India has made effective the RFCT LARR Act, 2013 (Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013) wef

01.01.2014. Now, the land acquisition for the projects would be as per this Act which also mandates the statutory requirement of fulfilling the minimum R&R entitlements envisaged in the Act along with the Compensation. A Social Impact Assessment (SIA) Study by the Appropriate Govt to study the impacts of proposed land acquisition, formulate SIMP (Social Impact Assessment Plan) and to judge if the said Project requiring the land serves the Public Purpose is also mandated in the Act prior to Initial Notification for Land Acquisition.

Recognizing the importance of a sound institutional framework to achieve the desired results, NTPC has set up dedicated R&R groups. These R&R groups operate at projects, Regional Headquarters and the Corporate Centre, associating people with social expertise and philanthropic thoughts, consultants, facilitators, social scientists and NGOs/CBOs. For effective participation, consultation and transparency with the stakeholders in its activities, Public Information Centres (PICs) and Village Development Advisory Committees (VDACs) or similar participative mechanisms have been set up by the organization. The Grievance Redressal Mechanism for each project encourages PAPs to approach them if they are dissatisfied with the arrangements. In an endeavour to not just meet its promise but also transcend its own parameters and perform better, innovative practices are used from time to time depending on the project. R&R activities in the organization endeavor to not just meet the formal organizational commitments made to the PAPs in line with company's R&R policy but also go beyond them through the application of innovative practices from time to time. The R&R plan implementation is an ongoing process. Land compensation and R&R grants disbursement were in active mode in mainly Darlipalli, Kudgi and Tanda-II projects during FY-2015 and at Darlipalli, Kudgi, Tanda-II, Gadarwara, Khargone, Bilhaur and Katwa projects in FY-2016.



NTPC plants in total harmony with Nature

Public Information Centre (PIC) : To disseminate information on the project, PICs at Corporate Centre and projects, house an array of documents such as survey reports, action plans, land records, policy, etc. The PAPs are able to get information on various facets of the project and also submit any query or grievance.

Consultative Mechanisms : Village Development Advisory Committees (VDACs) or similar participative mechanisms facilitate finalization and implementation of RAPs in a participative manner. It constitutes of representatives of PAPs, Gram Pradhan, Panchayat representative, Block Development Officer, other representatives of State Government, NTPC and NGOs/CBOs, and meets regularly since the formulation of RAP till completion and closure of RAPs at respective projects.

Implementation, Facilitation and Evaluation: The implementation of RAP is facilitated and evaluated periodically during the implementation of R&R plan by Regional Head Quarter and Corporate R&R Group. Project Planning & Monitoring (PP&M) also keeps track of RAP implementation progress through Project Review Team (PRT) meetings regularly.

The most effective way of addressing the R&R issue is through a proactive approach and an appropriate planning of land acquisition. Towards this, NTPC adopts the following principles and strategies:

- Minimize the land requirement through compact and

efficient layout of plant, township and other facilities.

- Minimize the acquisition of prime agriculture land and other assets to the extent possible and avoid acquisition of the homesteads.
- NTPC shares information and carry-out consultations through formal mechanism of PIC and VDAC or similar consultative mechanism during the implementation of R&R Plan.
- A Socio Economic Survey (SES)/ Social Impact Assessment (SIA) is conducted by a professional agency to collect detailed demographic details of the area and people which forms the basis for the preparation of R&R Plan.
- All PAPs who are residing, working, doing business or cultivating land or having rights over resources within the project area as per the categorization and provisions for eligibility in the policy are entitled for compensation for their lost assets as per the law of land and for other R&R benefits as per livelihood loss, sufficient to assist them to improve or at least regain their previous standard of living.
- A comprehensive Community Development Plan is formulated in consultation with stakeholders and District administration for taking up community development activities, mainly in the area of Education, Health, drinking water, sanitation, infrastructure, women empowerment, welfare etc. in the periphery of the project site, in a defined geographic area.
- NTPC has taken new initiatives by setting up new ITIs and adopting existing ITIs and Engineering Colleges to improve employability of PAPs and local population.

Grievance Mechanism for Impacts on Society

Participation of Panchayat, community & local authorities is encouraged during planning, implementation and monitoring of CSR & Sustainability projects, for their acceptance, support & recognition of CSR initiatives. It is done in three phases:

MONITORING:

Monitoring is done to ensure timely completion of activities and to achieve deliverables. Regular reviews are done at Unit Level, wherein bottlenecks are identified and remedial measures taken. Periodic MIS on status and issues of CSR & Sustainability activities is put up to appropriate level and intervention is sought wherever required.

EVALUATION:

Effectiveness of CSR & Sustainability programme is assessed through both internal & external evaluation. Internal Audits are carried out to verify effectiveness of implementation. Social Impact Evaluation (SIE) is done through credible external agencies for gauging impact of CSR & Sustainability initiatives. Findings of SIE form the basis for initiating corrective actions and formulating future schemes.

REPORTING:

NTPC brings out its Sustainability Report annually, based on globally acclaimed Reporting Framework. CSR & Sustainability activities undertaken by NTPC are disseminated to the stakeholders through Company's Annual Report & Sustainability / Business Responsibility Report etc. These reports are made available in public domain by uploading them on NTPC website and to internal stakeholders.

Social Performance

As far as R&R is concerned, in every project, a consultative mechanism comprising of representatives of PAPs, State Government & NTPC is constituted for formulation of R&R Plan including implementation and Grievance Redressal System. NTPC addresses grievance of PAPs as per policy provisions at the project level. Grievances are also received through RTI and VIP references through GOI which are replied in time bound manner. The RFCT LARR Act stipulates various committees for redressal of complaints. The Act also mandates strict penalty clauses for violation of the provisions. No grievance related to CSR activities by the organization was received during the reporting period.

Public Policy Participation

The public policy advocacy, at NTPC, encompasses a wide range of activities. NTPC is a corporate member of 51 varied national & international organizations, and participates in these forums for issues pertaining to public policy. The company takes up the issues for policy advocacy conducive for sustainable development of the Power sector. A comprehensive list of the organizations is given in the 'Key Data at a Glance' section of this report. Being in the electricity generation business, NTPC shares its experiences and views on key public policy issues, such as Electricity Tariff Regulations, Electricity policy, Grid Code etc., with relevant authorities as and when required. The advocacy includes capacity building, relationship building, networking, and leadership establishment.

The company does not give any contribution (in-kind or in-cash) to political parties, politicians and related institutions. Due care is taken to ensure that the company complies with all the statutory requirements from time to time. There has never been an instance of non-compliance with laws and regulations pertaining to workplace discrimination, corruption, fraud etc. No fines or penalties were imposed on NTPC during the reporting period.

During the reporting period, no case was filed by any stakeholder against the company regarding unfair trade practices, irresponsible advertising and/or anti-competitive behavior.

NTPC complied with all laws and regulations concerning provision and use of products and services. There has been no monetary fine for non-compliance with laws and regulations concerning the provisions and use of products during the reporting period.

Investors Grievances

NTPC has attended its investor grievances expeditiously except for the cases constrained by disputes or legal impediments. The details of the complaints received, resolved and disposed off during FY-2016 are as given below:

Particulars	Opening Balance	Received	Resolved	Pending
Equity Shares	1*	2310	2311	0
Tax Free Bonds-2013	0	99	99	0
Tax Free Bonds-2015	0	290	290	0
Bonus Debentures	0	153	153	0

*Consumer forum Case

Additionally, in FY-2015 and FY-2016, 1288 and 1456 RTI applications were received from CSR, R&R, HR, Contracts, Project, Environment and General areas; out of which 1240 and 1384 applications were replied respectively.

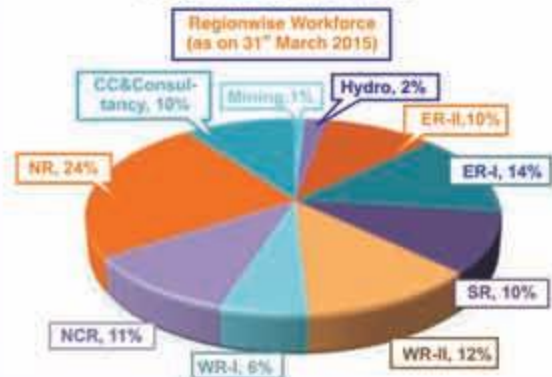
Labour Practices

Employment

At NTPC, it begins and ends with people. The company is deeply passionate about ensuring the holistic development of all its employees as distinct individuals and good citizens. The organization had strength of 21,633 motivated employees as on 31st March 2016. NTPC does not hire employees on temporary or casual basis. Gender wise break up and region wise employee strength during the period is as given below.

	MALES		FEMALES		TOTAL
	Exec.	Non-Exec	Exec.	Non-Exec	
As on 31-3-2015	11665	9412	821	598	22496
As on 31-3-2016	11219	9038	782	594	21633

Regionwise Workforce



Regionwise As on 31.3.2016



Contractors perform work in peripheral and non-core areas in NTPC premises, depending upon requirements from time to time and the number of contractors as well as their work-force are dynamic in nature. Contract labour are deployed on eight hours duty in general shift and shift rota for round the clock service. The number of contractor workforce are dynamic in nature. Average number of contract workforce of 23 operating stations and one hydro projects is 42589. This includes extension projects in operating stations. However, as a principal employer, NTPC ensures that all statutory benefits are extended in all cases. NTPC does not hire senior management positions from the local community. They are deputed from Corporate office for all locations as per requirement. NTPC has a process in place for induction of executives through Press advertising etc. Hiring of non-executives is done at local and regional levels with appropriate notifications to the employment exchanges of the respective locations. The lowest level in NTPC is W0 and wages of employees in this level are same across all locations of NTPC and are more than the minimum wages prescribed by state government. The remuneration policies for the highest governance body, executives & supervisors are in line with DPE guidelines. The Management Approach on Compensation & Benefits is guided by the Government guidelines issued from time to time and complies statutory conditions.

Employees have always been the driving force behind stellar performance of the company over all these years of company's ascendancy. Productivity of employees is demonstrated by increase in generation per employee and consistent reduction of Man-MW ratio year after year. Overall Man-MW ratio for the year 2014-15 was 0.61 and for the year

Employee Productivity



2015-16 was 0.55 (excluding JV/subsidiaries). Generation per employee was 10.72 MUs and 11.19 MUs during FY-2015 and FY-2016 respectively based on generation of the NTPC stations.

NTPC has a highly talented team of competent professionals and has been able to induct, and retain the best talent. The company has a very low attrition rate. Constitution of India guarantees equality before law and right to life and liberty. Based on the above mandate, NTPC ensures that all irrespective of caste, creed religion, sex etc. get equal rights regarding employment in NTPC. Equal wages and other admissible benefits are paid to all employees and there is no gender discrimination. Men and women are treated at par in all respects. However, as per regulation, there are some additional benefits such as maternity leave, are provided to women employees. A special child care leave of two years is provided to women employees. Retention rate after parental leave is 100% for both the years. All executives receive performance feedback during mid-year review and final appraisal as per the Performance Management System. The non-executives receive feedback in case of unsatisfactory performance.

The attrition rate of NTPC Employees during FY-2015 and FY-2016 are 1.13% and 1.04% respectively.

Diversity and Equal Opportunity

NTPC has been an equal opportunity employer; and upliftment of marginalized section of society has always been a key concern for the company. Guidelines and instructions issued by DOP&T/DPE with regard to providing

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reservation, relaxation, concession and other benefits/ facilities to scheduled castes, scheduled tribes, other backward classes and persons with disabilities are followed in letter & spirit.

To ensure due compliance with applicable orders and instructions pertaining to the reservation of vacancies in favour of the scheduled castes, scheduled tribes, other

backward classes and persons with disabilities and other benefits admissible to them, Reservation cell has been set up at corporate centre and at different locations of NTPC under the direct control of Liaison Officer.

Breakdown of employees for FY-2015 and FY-2016, indicating diversity of employees in NTPC (Including JVs and subsidiaries) is as below:

FY	Total	Male	Female	Minorities	SC	ST	OBC	PWD
2014-15	24091	22602	1489	1897	3573	1449	3717	487
2015-16	23136	21697	1439	1794	3435	1430	3730	486

Employee Benefits

"People before PLF" has always been the guiding mantra and employees of NTPC enjoy the following range of various benefits:

Benefits Provided to Regular Employees	
1. Medical treatment	<ul style="list-style-type: none"> Free medical treatment to self and dependent family members at company/empanelled hospitals for both in-patient and out-patient treatment. Regular medical check ups.
2. Facilities for higher studies	<ul style="list-style-type: none"> Study Leave. Incentives for acquiring off-campus additional relevant qualifications. Long term career oriented education programmes.
3. Contributory Scheme for Post Retirement Medical Facilities	<ul style="list-style-type: none"> Inpatient and outpatient medical expenses covered, subject to limitations for both, retired employee and spouse.
4. Separation/ Insurance Benefits	<ul style="list-style-type: none"> Group Personal Accident Insurance. Group Insurance. Leave Encashment. House Building Advance Insurance. Employee Death Relief Scheme. Gratuity. Provided Fund. Employee Family Economic Rehabilitation. Contributory Pension.
5. Loans and Advances	<ul style="list-style-type: none"> House Building Advance. Multipurpose Advance. Conveyance Advance. Children Education Advance. Household Furnishing Advance. Computer Advance.

Employee-management Relationship

NTPC follows collaborative approach with various stakeholders. This ensures cordial, peaceful and relationship based on respect and trust. Robust, time tested mechanism is in place so as to enable bilateral communication between labour and management. The practices, as regards the collective bargaining rights of workmen, are in sync with the provisions of Trade Unions Act, the governing statute on the issue. All employees in the unionized category (about 50-55% of the total workforce) are covered by collective bargaining agreements. All the collective bargaining agreements are in line with the applicable statutes and resultantly notice period, wherever applicable is given as per the relevant and applicable law. No specific time lines can be given keeping in mind the multiplicity of statutes, with different provisions, as are applicable at different establishments of NTPC, with a vast geographical spread.



At Company Level, an apex level forum consisting of employer and employee representatives' viz. National Bipartite Committee (NBC) is in place to discuss, negotiate and bargain on the issues like productivity, remuneration, benefits/ facilities etc. concerning the workmen. At Regional level, Regional Joint Productivity Council (RJPC), consisting of employer and employee representatives is operational. Similarly, at Project Level, Plant Level Committee (PLC), at shop floor level, Shop Level Council (SLC), Canteen Management Committee (CMC), Township Advising



Sadhguru Jaggi Vasudev addressed NTPC employees as part of eminent speaker series initiated by PMI

Committee (TAC) and House Allotment Committee (HAC) etc. are functional with representation from employer and employees, for facilitating the concept of Participative Decision making. The entire workforce is represented in formal joint management-worker safety committee to create safety consciousness and suggest ways and measures to the management for creating safe working conditions and culture.

NTPC management believes in the philosophy of open door policy in the matter of redressal of grievances and an aggrieved employee is welcome to meet his departmental head or the concerned HR Officer (including the Head of HR Department) and discuss his or her grievances. Nevertheless, in view of the ever growing size of the company and the accompanying complexities and problems, a need of formal grievance machinery was felt and accordingly, NTPC has laid down formal time-bound grievance procedures separately for executives and non-executives. The grievances in NTPC's units are dealt on-line in three stages and employees are given an opportunity to raise grievances on various issues of concern viz. wage payment, working conditions, medical facilities etc. Such issues are effectively settled through the time-bound grievance redressal system. However, majority of the complaints/grievances are redressed informally in view of the participative nature of the environment existing in our projects, stations and offices. The system is comprehensive, simple and flexible and has proved effective in promoting harmonious relationships between employees and management. There is no grievance of employees received through formal grievance mechanism during FY-2015 and FY-2016.

Occupational Health and Safety

Safety is a part of our core values. We recognize all accidents are preventable; therefore, safety is at the forefront of all our activities. The objective is to provide safe working environment and

strive for zero incidents at work. This policy supported by safety rules and procedures is applicable for all business activities carried out by NTPC.

Safety policy is built around following principles:

1. Our activities carry various hazards; however, all hazards can be identified.
2. Every job shall be done safely, no matter how important or urgent it is.
3. Putting people to work carries a specific responsibility and accountability for safety which shall be visibly demonstrated.
4. Right procedures and actions can bring the risks under control.
5. Trained and committed team can ensure incident free operations.
6. Compliance to all applicable safety regulations and other legal requirements.

NTPC recognizes and accepts its responsibility for establishing and maintaining a safe working environment for all its employees. This responsibility arises from:

- Company's moral responsibility to its employees, to provide the best practicable conditions of work from the point of view of health and safety.
- The obligation to consult its staff and their representatives to implement policies and procedures developed as a result of discussions.
- Statutory responsibility in respect of health, safety and welfare of employees emanating from relevant legislation such as the Factories Act, The Indian Electricity Act, /Rules, the Explosive act, the Boiler Act etc.

NTPC has a three tier structure for Safety management namely at Stations/Projects, at Regional Head Quarters and at Corporate Centre. Safety at workplace is one of the prime

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concerns of NTPC Management and utmost importance is given to provide safe working environment and to inculcate safety awareness among the employees and associates. Workers working in coal handling plant, boiler mill area, Turbine area, Chlorination Plant and high noise level area like T/G floor, compressors etc. have comparatively higher incidence or higher risk of disease related to their occupation.

Health and safety is NTPC's top priority. The ultimate aim is to have no incidents that harm its people, neighbours or put its plants at risk. All our stations are certified with OHSAS-18001 and ISO 14001. Many of our plants have been awarded with prestigious safety awards conferred by various Institutions/Body like Ministry of Labour & Employment, National Safety Council & Institution of Engineers (India), in recognition of implementing innovative safety procedures and practices.

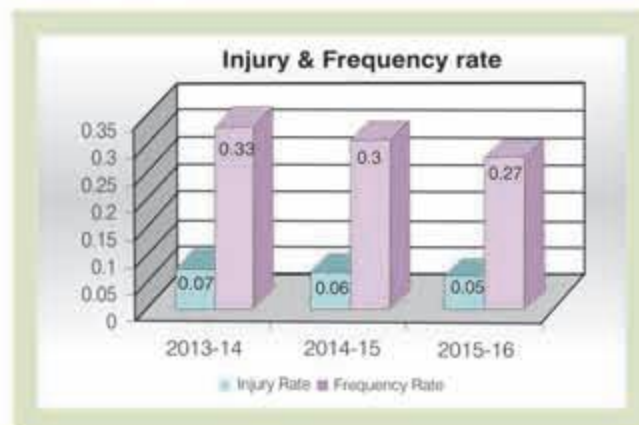
Also, to ensure the availability of healthy workforce, following measures are taken:

- ▶ Super Specialty Hospitals have been empanelled to ensure the best medical treatment for employees, dependents and retired employees.
- ▶ Annual medical Health check-up has been carried out for all employees and their spouses.
- ▶ Introduction of the "SMART HEALTH CARD" for employees, their dependents and retired employees for cash-less treatment at reputed hospitals.
- ▶ Preventive Health awareness program has also been organized.
- ▶ Yoga sessions, Dieticians etc. have been arranged to maintain a healthy life style.
- ▶ Ambulance facility has been provided for employees to meet emergency.
- ▶ Indemnity bond for Doctors/Paramedical staff has been initiated and obtained.

The steps taken by NTPC towards the goal of "Zero Accidents" include:

- ▶ Inclusion of Safety norms in general conditions of contract, for strict compliance.
- ▶ Training programmes for contractors' employees are being conducted at all sites on regular basis covering all relevant topics on Occupational Health and Safety. The percentage of employees undergoing such trainings is 80-90% (approx.) every year.
- ▶ Cross functional safety task force for O&M and construction projects are functional at all projects/stations to monitor safe working conditions at site and its rectification.
- ▶ Internal and external safety audits undertaken by NTPC safety officers and external safety auditors.

- ▶ To mitigate the on-site emergencies at all operating stations, effective engineering controls are provided to indicate and monitor emergency situation.
- ▶ Detailed emergency plans have been developed at all stations as per statutory provisions. Responsibilities are assigned to all concerned to handle the emergency situations.
- ▶ Regular Mock drills are conducted to check the healthiness of the system and any observations /suggestions are complied with.
- ▶ Awareness programmes on disaster management plan are also conducted regularly.
- ▶ To inculcate safety culture, various messages /instructions are displayed in the form of posters /hoardings at various vulnerable locations of working sites. Different competitions and campaigns on safety are also organized time to time to enhance the safety awareness for employees, contractors' workers and nearby villagers.
- ▶ Regular Medical examinations are conducted for our workers at work place and monitoring their health conditions. Safety trainings and Pep-talks are also organized for our workers at sites to make them aware about the hazards at work place.
- ▶ Disaster management plan and emergency action plans are prepared in consultation with district & state authorities and near by industries to tackle any emergency situation.



Health and Safety related issues are covered in the wage revision agreements with trade unions. Such agreements include commitment of the management as well as unions on creating a healthy and safe working environment for all employees. Duties of the management, employees and trade unions on health and safety related issues are also indicated in such agreements.

In FY-2015 injury rate was 0.06 and frequency rate was 0.30 as compared to 0.07 and 0.33 respectively from previous years. For FY-2016 injury rate and frequency rate was 0.05 and 0.27 respectively. No occupational disease has been reported in NTPC during the reporting period.

Training And Awareness

NTPC subscribes to the belief that efficiency, effectiveness and success of the organization depends largely on the skills, abilities and commitment of the employees who constitute the most important asset of the company. Understanding the necessity of consistently creating knowledge and developing new skills and competencies, NTPC has set up a comprehensive training infrastructure comprising NTPC Power Management Institute (NTPC-PMI) at the apex level and Employee Development Centers (EDCs) at sites. At three of these locations, there are also Simulators for providing training in operation of power plants. NTPC also sponsors employees to external training facilities in India and abroad.

Apex level NTPC-PMI at Noida is the cornerstone of NTPC's learning infrastructure. It has the primary responsibility of enhancing and upgrading the intellectual capital of the organization. Over the last 35 years, it has emerged as a leading institute providing learning on management, technical competencies and leadership. In fact, assuming for itself the role of a change agent, NTPC-PMI has become the learning facility for the entire power sector. It is playing a pivotal role in developing world-class competencies by providing state-of-the-art training to power professionals from India and other developing countries. The training imparted is in tune with emerging needs and challenges and for this purpose, the existing training programs are reviewed and some new programs are included in the annual calendar every year.

From the current year, NTPC-PMI is additionally giving special priority to Safety, Health and Environment (SHE) as it goes a long way in establishing operating practices that make power plants efficient and sustainable. Accordingly, 10 programs on safety have been introduced in NTPC-PMI's

Training Calendar for 2016-17, and the institute has tied up with National Safety Council, DuPont and Siemens TUV Rheinland to collaborate on more such programs. In tune with Government of India's thrust on renewable energy, NTPC-PMI has also introduced training programs on Solar and Wind energy in 2016-17.

PMI imparts hands-on training on Super Critical Technology through its 660 MW Simulator, to freshly recruited engineers as well as professionals from NTPC and other power utilities. So far, over 1050 power plant professionals have been provided training on the Simulator since its inception.

NTPC-PMI is also responsible for designing, imparting and evaluating the one-year intensive, compulsory training of freshly recruited Executive Trainees (ETs) in NTPC. In 2016, NTPC recruited 268 ETs in electrical, mechanical, C&I, civil, IT, HR and finance disciplines. In small separate groups, these ETs are presently undergoing training in general management and functional areas at NTPC-PMI and other locations like Dadri, Vindhyachal, Korba and Simhadri.



Average hours of training per year per employee by gender and employee category during FY-2015 and FY-2016 are tabulated below:

		Total numbers		Percentage receiving formal performance appraisal	Total hours of training imparted		Average hours of training per Employee	
		2014-15	2015-16		2014-15 & 2015-16	2014-15	2015-16	2014-15
Executives	Male	7766	7322	100%	407435	376532	52.46	51.42
	Female	420	393	100%	23580	19755	56.14	50.27
Non- Exec.	Male	8896	8439	100%	443099	430152	49.81	50.97
	Female	458	451	100%	23331	21934	50.94	48.63
TOTAL		17540	16605	100%	897445	848373	51.17	51.09

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During FY-2016, PMI conducted almost 400 training programmes covering nearly 7,700 professionals, logging a total of approximately 26,000 training mandays.

Name of Programme	No. of Participants		Mandays		No. of hours		Average hours per employee	
	2014-15	2015-16	2014-15	2015-16	2014-15	2015-16	2014-15	2015-16
AMC	70	88	840	1056	6720	8448	96	96
EMC	89	174	1068	2088	8544	16704	96	96
Capsule Course	134	87	1608	1096	12864	8768	96	100.78
Foundation Course	40	283	509	3353	4072	26824	101.80	94.78
Exec. Development Course	81	72	2589	894	20712	7152	255.70	99.33
Deptt. Exam Class	1355	439	2948	4566	23584	36528	17.41	83.21
Pre-Promotion Class	981	830	3000	6953	24000	55624	24.46	67.02
Any Other Class	5567	3932	11273	8329	90184	66632	16.20	16.95

In order to take training closer to the employees, NTPC-PMI has adopted training through video conferencing, web conferencing and e-learning. Two years ago NTPC-PMI adopted training through Web Conferencing, whereby an employee can undergo training at his or her workstation itself. Since then, this has become a regular mode of training. NTPC-PMI conducted 62 training programs through this platform during FY - 2016. NTPC- PMI has also developed 20 e-learning packages for end users of ERP-SAP.

Under the planned intervention titled "Strategic Management Initiative for Leadership Effectiveness" (SMILE), a top management group of 22 General Managers and Executive Directors of NTPC were given a one week exposure at Wharton School in June-July, 2015, after three days intervention in New Delhi, to revitalize their perspective and re-align their strategic orientation for sustainable leadership practices. Further, in view of the importance of Enterprise Risk Management (ERM) as per Companies' Act 2013 and NTPC's Listing Agreements, NTPC-PMI conducted special programs on ERM for senior level executives.

For all round development of India's power sector, NTPC-PMI has conducted several customized training programmes for the benefit of State utilities (from Gujarat, Haryana, Rajasthan and Uttar Pradesh), CPSEs (PFC, REC, THDC, STC, etc.) and private sector companies (Tata Power, RIL, Bajaj Group, etc.), at their locations as well as in PMI. In addition, several employees from State utilities have benefitted from the training programs being conducted at PMI. In all, 1,163 participants from such other organizations got trained at NTPC-PMI during FY-2015 and 1,084 participants during FY-2016.

At the international level, NTPC-PMI continues its activities in

Abu Dhabi where it delivered a programme of total six weeks' duration during July-October, 2015 for ABB on Power Plant Operation and Simulator Training for Combined Cycle Gas Power Plant, after the three programs it did the previous year, thus firmly establishing NTPC-PMI as a training partner of ABB.

Thus, NTPC-PMI is playing a pivotal role in developing world-class competencies by providing state-of-the-art training, responding to and pro-actively meeting the needs of power professionals from India and abroad. Development programme has also been conducted for highest governance bodies to enhance collective knowledge of economics, environment and social topics.

In recognition of its excellence in training and development, NTPC-PMI was honoured with the Award 2016 by the Institute of Directors, a prestigious body of eminent personalities from the industry, academia, government and judiciary. Announced on 24th March, 2016, the formal citation along with the trophy was presented at a glittering ceremony in Dubai on April 20, 2016.

NTPC PMI has been conducting gender sensitization workshops for building a collaborative work culture across the organisation, in association with the National Commission for Women. In these workshops, employees, both male and female, are sensitized and made aware about issues and laws pertaining to sexual harassment as well as appropriate behavior at the workplace. During FY - 2016, PMI has conducted 12 such workshops across the organization covering 250 employees.

"Golden Peacock National Training Award 2016"

NTPC is among the pioneers to start an Employee Assistance Program (EAP, a confidential expert counseling service for employees and their family members). PMI is providing the ideas and implementation support to NTPC for the EAP services.

With the objective of grooming professionals into world class leaders in power sector, NTPC opened the "NTPC School of Business" for running the flagship program titled "Executive Post-Graduate Diploma in Management" (EPGDM). The program is duly approved by AICTE and is being administered at PMI premises. This 15 months course has been launched with the objective of fulfilling the demand for professionals with focused domain expertise in their business and also having a general management perspective, in the rapidly growing power and energy sectors. It aims at enhancing the capabilities and competencies of junior to middle level executives and managers, with the approach that the participants shall be able to leverage the unique positioning of the school to develop themselves as world class business leaders in the power and energy sector. This rigorous and challenging program also includes learning inputs from international faculty, two weeks international exposure at Nanyang Technical University, Singapore, and exposure to industries within and outside India. The 1st batch passed out in November, 2016 and had its convocation on 3rd December, 2016. The 2nd batch commenced on 22nd August, 2016.

NTPC-PMI is mandated to implement the skill development initiatives of NTPC for the country's youth. As the nodal agency, NTPC-PMI is facilitating the adoption of existing Government ITIs and setting up of new ITIs in different parts of the country spanning 16 States. Till now, NTPC has adopted 18 ITIs and set up 8 new ITIs near its power stations, thus associating with total 26 ITIs. Of the 18 Govt. ITIs adopted by the Company, 15 ITIs were adopted under the PPP scheme of Gol and 3 ITIs have been adopted under bilateral agreement with different State governments. These initiatives by NTPC resulted in creation of total 1,831 new seats by starting of new trades/units in the adopted and new ITIs. Cumulatively, a total of 26,448 students benefitted from this initiative till 31.03.2016. For these ITI students, NTPC organised 47,992 man days of industrial training/plant visits. NTPC-PMI is also mandated to implement projects for imparting skill development training to Indian youths in the coming years. NTPC has partnered with the Ministry of Skill Development and Entrepreneurship, Government of India, to contribute in realising the vision of "Skill India".

Due to all these skill development initiatives, NTPC has been conferred two awards:

"Award for Vocational Training 2015-16."

"PMI (India) Award for Community Development – 2014"

PRODUCT RESPONSIBILITY

NTPC sells electricity from its Power Generating Stations located across India, to various bulk customers spread throughout the country. Our customers are mainly State Electricity Utilities like State Electricity Boards, State Electricity Distribution Companies, SEB Holding Companies and State Power Departments which account for around 90% of the sale of electricity. NTPC also sells to private distribution companies in Delhi and some bulk consumers like Railways. NTPC endeavors, in line with its mission, to provide reliable power and services at competitive prices and integrating multiple energy sources with innovative and eco-friendly technologies. Being a power utility customer privacy is not applicable to NTPC. The Company participates extensively in various sector development programmes of the Ministry of Power, Gol, to ensure inclusive growth in the Power sector. Some of these programmes are as follows:

- ▶ Re-structured Accelerated Power Development and Reforms Programme (R-APDRP).
- ▶ Rural Electrification programmes.
- ▶ Jawaharlal Nehru National Solar Mission (JNNSM).

Besides the above programmes, NTPC has been actively associated with following initiatives of the Government of India for improving access to electricity:

- ▶ Guidelines for tariff based competitive bidding.
- ▶ Development of Ultra Mega Power Projects.
- ▶ Allocation of captive coal block.
- ▶ Private sector participation in transmission sector.
- ▶ Establishment of the Power Exchanges.
- ▶ Promotion of renewable energy.
- ▶ Financial restructuring plan for DISCOMs.
- ▶ Demand side management initiatives e.g.

- i. National Mission for Enhanced Energy Efficiency (NMEEE).
- ii. Perform, Achieve and Trade (PAT) Scheme.
- iii. Energy Conservation Building Code (ECBC).

NTPC contributes in the above initiatives with a vision to power India's growth.

Social Performance

Customer focus



Customer Relationship Management (CRM) initiative has been taken by us with our customers. This is also reflected in the Core Values of the Company (ICOMIT) which emphasizes 'Customer Focus' as one of our core values. Under CRM, the Company has designed and executed several structured activities with the objective of sharing experiences and best practices with the customers, capturing the feedback and expectations. Based on the feedbacks, the Company provides various support services to them and identifies potential areas of cooperation. During FY-2016, 62 such services were provided to the customers.

NTPC offers training programs to the representatives of beneficiary companies at Power Management Institute (PMI), free of cost. During the year FY-2015, 134 participants from various customer organizations attended training in 58

programs and in FY-2016, 124 participants attended 73 programs conducted by PMI.

Company has put in place a Customer Satisfaction Index (CSI) Survey for gathering customers' feedback and responding to their requirements. The revamped CSI survey was carried out in FY-2016 to include feedbacks of grid operators with objectives of understanding the grid operators also.

There are no complaints as such from customers. However, as part of tariff determination process under the overall Regulatory System, following cases have been filed (as on 21.06.2016) by Company against CERC, customers or filed by different Beneficiaries of Company against Company/CERC. The details are as under:

Description	2014-15	2015-16
Cases with Appellate Tribunal For Electricity (APTEL)	38	9
Cases in Supreme Court	83	33
Other Cases Pending	14	12

Customer health and safety

NTPC is generating electricity by their power plan and no other product is manufactured. However, due care is taken to ensure health and safety of associates and other stakeholders too, during electricity production and in all areas under operational control of NTPC. Following steps have been taken:

- ▶ DOT centers to eliminate tuberculosis have been established at projects.
- ▶ Emergency facilities and medicines are arranged.
- ▶ Ambulance facility has been provided for the surrounding population to meet the emergency.
- ▶ Fogging, spraying anti larva chemical in the project and its surrounding villages has been done on regular basis.
- ▶ Mobile health clinic has been provided in some of the projects.
- ▶ Modern Medical Equipment/gadgets arranged to enhance the medical services.

- ▶ Annual health check-up and free medical treatment have been arranged for all contractors' and sub contractors' employees in all projects and sites of NTPC.
- ▶ Free welfare camps (Health/Family Welfare/Eye/Diabetic/Heart/Cancer etc.) have been organized on regular basis for the neighborhood community.

No incident 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 have been reported. There are no injuries and fatalities reported in the current reporting period to the public involving company assets, including legal judgements, settlements and pending legal cases of diseases.

Product safety

NTPC's core business is generation of electricity and the Company is not directly involved in the business of transmission and distribution. However, as a responsible power generation company, it offers technical and managerial support services to its customers, as per their

requirements. Various customer support activities in different areas, including health and safety aspects, are extended to the customers in the form of workshops and seminars. As per the requirements of the people around, NTPC takes due care in displaying safety instructions in local languages. Electricity, the sole product of NTPC cannot be labelled due to its intrinsic nature. However, NTPC has been complying with the Grid Code and Grid Standards - National and International, wherever applicable.

Marketing strategy

The Indian Power sector is governed by the Electricity Act, 2003 which provides the overall legislative framework for the sector. Electricity Act, 2003 has promoted a liberal, transparent and enabling framework for development of the sector through creation of a competitive environment. At the same time, the Act protects the interests of the consumers. The Act has enabled introduction of some path breaking initiatives in the sector, such as de-licensing of Power generation, introduction of Open Access in transmission and

distribution, licensing for trading as a distinct activity, unbundling of the distribution sector etc. It seeks to promote availability of quality supply of electricity to consumers at competitive rates.

NTPC is not in the business of Power distribution, and so, it does not directly deal with the demand side management, yet it educates its customers and society in general by offering free seats for beneficiary Discoms to participate in programmes conducted at Training Centre of NTPC regarding Demand Side Management. Special Workshops at customer end are also conducted with eminent faculties to educate beneficiary Discoms in this area under Customer Relationship Management activity. Being in the generation business only, Power outage indexes, such as SAIFI & SAIDI, are not applicable to NTPC. However, the average planned outage, forced outage and availability factor of NTPC Coal Stations and Gas Stations during FY-2015 and FY-2016 are given below:

Description	Planned Outage, %		Forced and other Outage, %		Availability Factor YTD (%)	
	2014-15	2015-16	2014-15	2015-16	2014-15	2015-16
Coal Stations	5.4	4.7	2.54	2.77	88.3	88.1
Gas Stations	5.6	1.8	0.51	0.03	45.9	36.5

- ▶ There has been no incidence of non compliance or wrong business practices pertaining to marketing and communication including advertising, promotion and sponsorship during the reporting period.
- ▶ NTPC complied with all the laws and regulations concerning provision and use of products and services. There has been no monetary fine for non compliance with laws and regulations concerning the provision and use of products during the reporting period.



Construction of toilets in Government schools under Swachh Vidyalaya Abhiyan

NTPC addresses the issues like dropout and absenteeism of girl child in schools due to poor sanitation facilities and poor health & hygiene of rural communities due to open defecation through the project "construction of toilets in Government schools under Swachh Vidyalaya Abhiyan"

Response to the needs of the community:

- ▶ India is home to 60% of the world's open defecators i.e. out of 1.1 billion open defecators in the world; 626 million reside in India (WHO-UNICEF, 2010).
- ▶ 55% of all Indians, or close to 600 million people, still do not have access to any kind of toilet.
- ▶ In rural areas, 74% of the rural population still defecates in the open, despite of incentive schemes like Nirmal Bharat Abhiyan (NBA), Total Sanitation Campaign (TSC), Sarva Siksha Abhiyan (SSA) for individual / Community toilets, Anganwadi / School Toilets etc.
- ▶ Incentives are being provided.
- ▶ Despite these schemes, access to improved sanitation remains far lower in India as compared to many other developing countries like Bangladesh, Mauritania, Mongolia, Nigeria, Pakistan and Vietnam.
- ▶ Non availability of good sanitation facilities has increased the dropout rate of girl child, safety issues etc.

Process of implementation (stakeholders, dialogue mechanism, etc.):

- ▶ List of identified sites for taking up toilet construction/repair was made available by MoHRD on website. Approval accorded by MoHRD after consultation with concerned State Govt. officials for taking up the activity at identified locations.
- ▶ Around 400 No of Teams with more than 900 members at 42 NTPC Locations for conducting Base line Survey.
- ▶ 180 contracts for 20000 conventional toilets by 42 sites and about 75 contracts awarded for about 6000 prefab toilets.
- ▶ Monitoring at apex level ie PMO, Cabinet Secretariat, MoHRD, MoP etc. NTPC top management took more than 100 reviews to ensure the timely completion of

work. Adoption of Innovative methodologies for monitoring eg. WhatsApp, call centre, separate web portal for monitoring and Video Conferencing etc.

- ▶ Completed more than 29000 toilets in about 16000 schools covering more than 650 blocks in 83 districts spread over 17 states.

Major Challenges:

- ▶ Vast geographical spread/ far from NTPC presence. Some of the toilet locations were about 250 Km away from NTPC locations.
- ▶ Remote locations & difficult terrains not approachable by road (Transportation had to be accomplished by head load).
- ▶ Non Availability of Land for construction of toilets.
- ▶ Material Transportation through River in Bihar.
- ▶ Adverse weather condition: Tough summer and unpredicted rains during April.
- ▶ Strata ranging from rocky to sandy – a challenge for foundation work.

Evaluation of the Programme :

The evaluation is being done by external agencies nominated by MoP.

Impact of the Programme :

- ▶ Reduction in girl child dropout and going forward.
- ▶ Behaviourial change resulting in reduced open defecation hence improvement in health and hygiene of community.
- ▶ Spread of the messages of cleanliness, good hygiene and proper sanitation among rural communities.
- ▶ Availability of about 29000 toilets ensured by NTPC directly impacting the lives of almost 20 lakh children.

Steps taken to ensure the sustainability of the programme :

Completed toilets were handed over to School administration in writing. 2 years maintenance clause is in-built in awarded contracts.

Case Study - II

Implementing clean lighting and cooking solutions through IDES (Integrated Domestic Energy System)

- ▶ To disseminate clean lighting and cooking solutions through establishment of IDES (Integrated Domestic Energy System) NTPC has provided 1000 numbers of IDES in the district of Chatarrpur, Madhya Pradesh around Barethi plant of NTPC and in the villages situated within Satkosia Gorge Wild Life Sanctuary in Odisha. Training provided to local technicians for the installation and operation of the systems. For operation and maintenance Energy Enterprise (EE) established at local level.

Deliverables:

- ▶ Households illuminated by the provisioning of improved solar lighting services to rural communities, expanding the existing livelihood potential of the region:
- ▶ Replacement of fossil fuel with Solar energy
- ▶ Fulfilment of NTPC's CSR objective by bringing light into lives of rural communities



Clean lighting and cooking solutions through IDES (Integrated Domestic Energy System) around Barethi Plant

Education

Free coaching facility for the talented underprivileged Super 30- coaching for engineering, medical entrance exams to students

- ▶ NTPC Vindhyachal's initiative of Super 30 is turning around the life of almost 30 students every year, who otherwise would have lost in the darkness.
- ▶ In super 30 scheme up to 30 Students from economically weaker section of the District Singrauli are selected through a competitive exam and interview conducted by the District Administration and provided with free coaching, boarding, lodging, facilities and conducive environment to facilitate the potential students to get admissions in top notch engineering and medical colleges of India.
- ▶ 53 students in 02 batches were provided with all the above mentioned facilities.
- ▶ Monitoring was done at various levels by the agencies involved coaching centre, schools and the District Administration.
- ▶ The results are very encouraging, 20 students found place in top NITs, Government Engineering and medical college. Others are perusing BSc., B.Ed., polytechnic and nursing and a few are reappearing for medical entrance.
- ▶ The encouraging results have motivated to continue the program and therefore another 02 batches of 60 students, who are studying in class 11th and 12th are undergoing coaching.
- ▶ NTPC's Super 30 program is a ray of hope to the students of economically weaker sections who are talented but gets deprived of their future due to lack of resources. NTPC has become a channel to help, meet them with their bright future.



coaching facility for the talented underprivileged at Vindhyachal

Case Study - IV

Drinking Water Facility

Provision for Community based Drinking Water Solutions in Sipat

- ▶ High levels of TDS and Magnesium in ground water at Sipat cause various water borne disease like diarrhoea, guinea worm disease, typhoid and kidney stones.
- ▶ To improve access to safe drinking water, NTPC Sipat took up installation of state-of-art water purification system and solar powered ATMs.
- ▶ Water purification plant was installed in an abandoned building renovated for the purpose. The water purification has the capacity of 1000 litres/hour and is equipped with Reverse Osmosis (RO) technology and two solar powered ring structured water ATMs.
- ▶ This unique CSR intervention in collaboration with Community and Piramal Water Pvt Limited has enabled access to affordable 24x7 safe drinking water to about 325 households of Sipat benefiting around 1500 people.
- ▶ NTPC CSR team, Piramal Sarvajal and Sipat Panchayat, monitors the project at regular intervals. Water ATMs are equipped with remote monitoring and water tracking systems which gives real time information on water quality and amount of water dispensed. The data is collected and analysed for quality checks.
- ▶ Panchayat has ensured its active participation by monitoring the plant, ensuring availability of ground water, facilitating electricity connection, getting a local person to be trained as plant operator, guiding and advising Sarvajal and NTPC on water quality and requirement issues. The sole ownership of the plant including its maintenance will be transferred to gram panchayat over a period of 05 years.
- ▶ Fulfilment of NTPC's CSR objective by bringing light into lives of rural communities.



"After the installation of water purification plant in our village and awareness drives, now I know difference between drinking safe and unsafe water and how drinking unsafe water can affect our health"



Drinking Water Solutions in Sipat

Promotion of Health & Hygiene "Arogya Sewa" – Regular Primary health check-up camp for old age folk.

- ▶ NTPC Farakka took an initiative "Arogya Sewa" to provide health care with modern medication to old age tribal, forest dwellers, old, sick and elderly people from other weaker sections of the society residing in 25 villages and neighbouring forests in association with Help Age India as implementing partner.
- ▶ The initiative benefitted over 12000 old age people in about 170 camps including the special camps such as cataract.
- ▶ The community participation was ensured by involving school teachers, Asha, ANM and PRI members & Imam of the villages.
- ▶ Arogya Sewa turned out to be a boon to elderly, the results were quite encouraging and had positively impacted their lives
 - 87% diabetic persons attained normal sugar levels
 - Reduction in occurrence of BP cases from 75% to 30%
 - 23 people operated for cataract.
 - Improved health and hygiene in 74% of the targeted old age population.
 - 31% of people were tobacco De- addicted.
 - Open defecation has been minimized by 30%.



Khoirul Islam, 85 years old elderly of Amatala was severely suffering from amoebic dysentery and lower back pain consistently until, he came to NTPC's health camp. Initially he was not sure of his cure but counseling on hygiene and medication gave him a great relief and also his trust on the medication developed in his subsequent visits, he was given physiotherapy for his back pain and a printed leaflet on guideline of doing physical exercise. He got cured & his pain has been transformed into smile. Now he is engaged in gardening his small piece of land producing vegetables meeting needs of his family. Now he is a motivator in the village, spreads awareness on health & hygiene, takes active participation in organizing camps and motivate others to get benefitted out of same.



Promotion of Health & Hygiene NTPC Farakka

Case Study - VI

Income Enhancement in Farm sector livelihood support & promotion through innovative agriculture

- ▶ Agriculture is the primary occupation in the villages in and around NTPC Jhanor, but traditional farming methods were not yielding the desired results and in the year end farmers were left hand to mouth, due to undeserving prices despite of day night hard work.
- ▶ The general crops cultivated in the Jhanor region are Cotton, Pigeon Pea and Sugarcane. Average income that farmer gets per year from this cropping pattern is from ₹ 10,000 to ₹ 25,000 per half an acre (Bigha).
- ▶ NTPC Jhanor organized 2-day training programs focusing on livelihood support & livelihood promotion through innovative agriculture to help improve the income levels of farmers and to create role model farmers which can inspire and enable their fellow farmers for innovative agriculture.
- ▶ The 2-day program which included rigorous training session on the advance techniques of farming, supported by audio and video in local language resulted in good sensitization and awareness among farmers. This was followed by field visits to see the success stories of their fellow district farmers as "Seeing is Believing". All the visits were strategically planned at appropriate time for more effective impact on the participant beneficiary farmers.
- ▶ Farmers got a good insight and knowledge about micro-irrigation system, crop diversification, cultivation of cash crops, use of solar and renewable energy in agriculture, Integrated Nutrient & Pest Management, bee keeping, tissue culture, use of digital platforms and moreover unified marketing mechanisms, the topics are few to list out.
- ▶ Conviction of the participant farmers was further affirmed during their field visits and interactions with senior authorities of Agricultural-universities and experienced Agricultural-entrepreneurs.
- ▶ NTPC CSR team as well as Team FARM Bridge, the implementing agency were in constant touch with the participants. The faculty members and Team Farm bridge provided complete support & technical help, right from sourcing good & authentic quality seeds to the post sowing processes, to all the willing farmers.
- ▶ The results are bewildering. Many of the farmers have been motivated to try different crops with use of technology and HYV seeds and are reaping unexpected incomes.
- ▶ Tarun Patel of Shahpura village had cultivated Papaya on his 5 acre (10 Bigha) agricultural land. FARM Bridge team experts are monitoring his cultivation in technical aspect. He is expecting a profit of ₹ 80,000/ Bigha from Papaya Cultivation later this year.
- ▶ Dattu Patel of same village has gone for crop diversification and sowing long term horticulture crops like Mango & Chickoo in his 5 acre (10 bigha) land. Best of the saplings of both the crops will be sourced and will be sown in monsoon. Appropriate inter crop for mixed cropping will also be suggested. He is also going for honey bee rearing to increase the production of the crop by at least by 25-30%. Profit of ₹ 85,000/Bigha is estimated from his mixed cropping land along with Honey Bee Rearing.
- ▶ The list is endless and progressively the other farmers are imitating to reap the high profits.

Cropping pattern before



Cotton Crop

Cropping pattern after the training



Cotton Crop



Sugarcane Crop



Pigeon Crop



Mango Orchard

Key Data at a Glance

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Economic Indicators

Particulars	FY 2012-13 (₹ in Crores)	FY 2013-14 (₹ in Crores)	FY 2014-15 (₹ in Crores)	FY 2015-16 (₹ in Crores)
A: Direct Economic Value Generated				
Revenues	69,614.92	74,507.95	75,176.22	71,520.64
Sub Total (A)	69,614.92	74,507.95	75,176.22	71,520.64
B: Direct Economic Value Distributed				
Operating Cost	44,881.02	50,031.33	53,398.59	48,831.77
Employee Wages & Benefits	3,360.12	3,867.99	3,669.78	3,609.32
Payments to Providers of Capital	6,665.52	7,147.74	4,805.00	5,992.60
Payments to Government	4,527.83	3,664.00	819.06	268.14
Community investments	77.08	120.21	125.91	489.89
Sub Total (B)	59,511.57	64,831.27	62,818.34	59,191.72
Economic Value Retained (A-B)	10,103.37	9,676.68	12,357.88	12,328.92
C: Employee remuneration and other benefits				
Nos. of Employees (year-end)	23,865	23,411	22,496	21,633
Average Salary, Wages and Benefits per Employee per Annum (₹)	15,76,840	18,28,865	17,61,375	18,60,648
Average Cost of other Benefits per * Employee per Annum (₹)	2,17,199	2,70,514	3,51,337	3,65,955 *
Average Cost of Employee Remuneration & Benefits per Annum (₹)	17,94,039	20,99,3792	21,12,712	22,26,603

*We offer employee benefits like provident fund, pension, gratuity, leave encashment on superannuation in accordance with company norms.

Key Data at a Glance

Environmental Indicators

Name of Indicator		Unit	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Input Material	Material used						
	Lube Oil	KL	1,711	2,093	1,192.2	1,599	1,073.30
		Lt/MU	7.75	9.06	5.12	6.64	4.49
	Transformer Oil	KL	344	259	410	276	395.95
		Lt/MU	1.56	1.12	1.76	1.15	1.66
	Chlorine	MT	4,914	3,559	4,317	4,267	4,537
		Kg/MU	22.26	15.41	18.53	17.70	18.99
	Ammonia	MT	1,249	1,764	550	455	2,974
		Kg/MU	5.66	7.64	2.36	1.89	12.45
	Alum	MT	10,746	9,838	10,672	11,165	8,900
		Kg/MU	48.69	42.59	45.81	46.30	37.27
	HCl	MT	15,140	14,500	13,784	14,758	14,030
		Kg/MU	68.60	62.77	59.16	61.20	58.74
	H ₂ SO ₄	MT	9,252	6,156	10,392	11,703	13,946
		Kg/MU	41.92	26.65	44.60	48.53	58.39
Hydrogen	MT	--	42.56	39.46	37.18	37.42	
	gm/MU	--	178.20	165.22	155.67	156.68	

Name of Indicator		Unit	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Energy	Direct energy consumed						
	Coal	MMT	141	155	158.2	162.1	160.6
		Kcal/Kg	3,371	3,276	3,334	3,368	3,408
		TJ	19,90,032	21,19,115	22,08,839	22,82,083	22,87,818
		Kg/kWh	0.713	0.731	0.718	0.71	0.70
	Natural Gas	MMSCMD	13.09	10.70	6.88	6.44	5.21
		Kcal/SCM	9,372	9,465	9,400	9,354	9,428
		TJ	1,87,477	1,54,767	98,830	91,908	74,942
		SCM/kWh	0.208	0.198	0.200	0.203	0.214
	Naptha	MT	1,23,403	2,67,296	1,66,790	1,44,577	26,854
		Kcal/ Kg	11,348	11,401	11,385	11,376	11,341
		TJ	5,863	12,759	7,950	6,875	1,273
	LDO	KL	13,856	25,583	34,733	23,246	15,862
		Kcal/KL	9,540	9,551	9,098	9,476	9,467
		GJ	553	1,023	1,323	921	628
	HFO	KL	57,863	70,062	53,116	63,407	76,943
		Kcal/KL	9,848	9,784	9,838	9,896	9,893
		GJ	2,386	2,870	2,187	2,623	3,182
	Specific Oil consumption	ml/kWh	0.36	0.45	0.40	0.38	0.40
	HSD	KL	279	998	434	1241	388
		Kcal/KL	8,669	9,052	8,760	9,050	8,992
GJ		10	38	16	47	15	

Name of Indicator		Unit	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Sector Disclosures - Coal Stations							
Installed Capacity	MW		28,695	31,855	33,015	33,615	34,175
Commercial Generation	MU		1,97,682	2,11,294	2,20,411	2,29,550	2,29,954
Net Generation	MU		1,84,186	1,96,688	2,05,198	2,13,623	2,14,392
PLF	%		85.00	83.10	81.50	80.2	78.6
Cycle Efficiency	%		35.83	35.83	35.88	36.04	36.05
Planned Outage	%		5.14	4.92	4.2	5.4	4.7
Forced Outage	%		2.81	2.93	2.8	2.54	2.77
Availability Factor	%		89.73	90.20	90.3	88.3	88.1
Sector Disclosures - Gas Stations							
Installed Capacity @	MW		4,017	4,017	4,017	4,017	4,017
Commercial Generation	MU		23,014	19,699	12,569	11,588	8,870
Net Energy Export	MU		22,504	19,235	12,222	11,256	8,594
PLF	%		65.2	56.0	35.7	32.9	25.1
Cycle Efficiency	%		42.76	42.55	42.57	42.38	41.81
Planned Outage	%		3.20	3.50	3.7	5.6	1.8
Forced Outage	%		0.15	0.58	0.46	0.51	0.03
Availability Factor	%		80.86	71.40	47.4	45.9	36.5
@For gas based power projects, earlier the capacity was indicated based on Net Guaranteed Output as per Main Plant Specifications. It has been revised to capacity at Generator Terminal w.e.f. 01.04.2014.							
Sector Disclosures – Solar Stations							
Installed Capacity	MW		---	---	75	110	110
Commercial Generation	MU		---	---	13,289	123.8	162,649
PLF	%		---	---	12.56	14.32	16.83
Total Installed Capacity (Coal+Gas+Solar)	MW		32,650	35,820	37,107	37,742	38,302
TOTAL Commercial Generation (Coal+Gas)	MU		2,20,696	2,30,993	2,32,980	2,41,138	2,38,824
Total Net Generation (Coal+Gas)	MU		2,06,690	2,15,923	2,17,421	2,24,879	2,22,986
Total Gross Generation	MU		2,22,068	2,32,028	2,33,284	2,41,139	2,39,506

Key Data at a Glance

Name of Indicator		Unit	FY2011-12	FY2012-13	FY2013-14	FY2014-15	FY2015-16
Auxiliary Power Consumption (Power consumed by plant auxiliary)							
Coal Stations	MU		13,346	14,451	15,029	15,180	15,210
	%		6.75	6.84	6.82	6.61	6.61
Gas Stations	MU		515	468	351	316	261
	%		2.24	2.38	2.80	2.73	2.95
Energy Saved							
Electrical	MU		111.2	119.9	115.1	115.4	116.9
Heat Energy (equivalent MT of coal)	MT		36,530	9,366	11,678	2,100	7,406
Heat Energy (equivalent MCM of Gas)	MCM		0.51	1.97	----	1.558	0.085
Heat Energy (equivalent KL of Naptha)	KL		21.24	253	----	-----	
Water	Total Drawn	Lakh KL	45,981	44,414	46,711	45,463	44,111
		Lt/kWh	20.83	19.23	20.05	18.84	18.44
	Total Drawn for closed cycle stations	Lt/kWh					3.33
Stack Emissions (All Stations)							
SPM	MT		1,06,922	1,00,226	1,03,016	1,09,392	1,01,722
Specific SPM**	gm/kWh		0.52	0.46	0.47	0.48	0.44
SO ₂	MT		7,90,889	8,47,919	9,42,700	10,47,914	8,46,003
Specific SO ₂ **	gm/kWh		3.83	3.93	4.34	4.4	3.7
NO _x	MT		4,64,822	4,89,711	5,22,375.0	5,56,351	4,96,262
Specific NO _x **	gm/kWh		2.25	2.27	2.40	2.3	2.2
Greenhouse Emissions							
CO ₂ (Coal Stations)	MT		17,99,02,214	19,22,28,461	19,22,28,262	20,61,08,871	22,34,00,199
CO ₂ emission intensity (Coal Stations)**	Gm/kWh		977	977	973	968.9	970.50
CO ₂ (Gas Stations)	MT		1,00,84,744	87,66,230	88,08,232	69,42,090	82,71,286.2
CO ₂ emission intensity (Gas Stations)**	Gm/kWh		448	456	459	553.3	455
** Based on Net generation							
Ozone Depleting Substances							
ODS	CFC-11 equivalent (Kg)		5,245	3,607	2,404	1,747.21	1,099.03

	Name of Indicator	Unit	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Waste Material	Non Hazardous						
	Misc. Ferrous Scrap	MT	15,503	40,053	26,271	18,109	15,268.76
		mg/kWh	70.25	173.40	114.69	75.22	63.93
	Non Ferrous Scrap	MT	497	867	893	2,077	2,385.6
		mg/kWh	2.25	3.75	3.83	8.6	9.98
	Hazardous						
	PCB	MT	0	0	0	0	0
	Used Batteries	MT	110	144	115	154	136.41
		Kg/MU	0.48	0.62	0.49	0.64	0.506
	Spent Resin	Lt	8,879	17,952	27,880	44,024	28,170
		ml/MU	40.23	77.72	136	182.88	117.95
	Used lube oil	KL	997	702	1,012	2,385	700.66
		Lt/MU	4.51	3.04	4.34	9.9	2.94
	Transformer Oil	KL	148	197	230	591.35	227.61
Lt/MU		0.67	0.85	0.99	2.45	0.99	
Bio- medical waste	Kg	10,727	10,678	19,565	26,405	14,232	
Effluents	Main Plant Effluents						
	Quantity	KL	44,55,92,309	43,00,81,284	40,63,30,545	48,72,60,665	46,61,80,937
		Lt/kWh	2.01	1.86	1.74	1.93	1.95
	PH	-	7.5	7.6	7.6	7.55	7.2
	TSS	mg/Lt	43.7	39.4	39.9	29.78	45.08
	O & G	ppm	2.4	2.7	2.1	2.02	3.26
Ash	Ash generated	Lakh Ton	500.5	562.9	578.26	591.53	588.28
Ash Utilized	Total Ash utilized	Lakh Ton	275.31	309.7	253.74	233.79	243.24
		%	55.01	55.02	43.88	39.52	41.35
	Land Devpmt	Lakh Ton	68.74	40.92	24.71	6.49	14.37
		%	13.73	7.27	4.27	1.10	2.44
	Issue to cement & other industry	Lakh Ton	72.42	81.45	71.53	67.73	58.25
		%	14.47	14.47	12.37	11.45	9.90
	Ash Dyke Raising	Lakh Ton	42.2	86.01	75.43	67.61	68.58
		%	8.43	15.28	13.04	11.43	11.66
	Bricks	Lakh Ton	19.17	27.24	23.36	28.02	37.96
		%	3.83	4.84	4.04	4.74	6.45
	Roads/Rail Embankment	Lakh Ton	17.97	18.46	7.22	8.13	6.26
		%	3.59	3.28	1.25	1.37	1.06
	Mine filling	Lakh Ton	11.68	13.34	18.04	20.89	24.15
		%	2.33	2.37	3.12	3.53	4.11
Others	Lakh Ton	43.13	42.27	33.51	34.91	33.66	
	%	8.62	7.51	5.79	5.90	5.72	
Environment Expenditure	Total	₹ (Crores)	94.12	124.8	135.4	961.64	742.86
		₹/MU	4,265	5,403	5,811	39,879	31,016

Key Data at a Glance

SOCIAL INDICATORS

Name of Indicator		Unit	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Total Workforce	Employment					
	Executives	Male	11,761	11,867	11,665	11,219
		Female	827	832	821	782
	Non-Executives	Male	10,637	10,081	9,412	9,038
		Female	640	631	598	594
	TOTAL		23,865	23,411	22,496	21,633
	Region wise Distribution					
	CORPORATE & CONSULTANT	No.	2,401	2,306	2,220	2,272
	NORTH	No.	4,151	4,019	5,339	5,236
	NATIONAL CAPITAL	No.	2,880	2,701	2,415	1,751
	SOUTH	No.	2,667	2,602	2,315	2,201
	EAST – I	No.	3,207	3,221	3,212	3,083
	EAST – II	No.	2,403	2,347	2,263	2,192
	WEST – I	No.	1,095	1,130	1,367	1,598
WEST – II	No.	4,399	4,437	2,771	2,744	
HYDRO	No.	449	436	417	388	
MINING	No.	213	212	177	168	
TOTAL	No.	23,865	23,411	22,496	21,633	
New Employee joined during the year						
Gender Diversity	Male	633	149*	334	174	
	Female	53	11*	20	16	
Total	No.	686	160*	354	190	
Employee Turnover	Employee Turnover * Employees joined through corporate					
	Gender Diversity	Male	166	154	237	217
		Female	18	20	18	27
	Age Diversity	= <30 yr	151	143	115	144
		30 < 50 yr	27	28	57	45
		> = 50 yr	6	3	83	55
	Region Wise Turnover	CC	20	9	44	40
		NORTH	32	24	71	59
		NATIONAL CAPITAL	16	7	18	14
		SOUTH	12	18	9	16
		EAST - I	21	21	28	26
		EAST – II	22	16	21	19
		WEST – I	17	25	24	24
		WEST – II	35	38	28	19
HYDRO		8	13	5	6	
MINING		1	3	7	4	
TOTAL	184	174	255	227		

	Name of Indicator	Unit	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Executive Attrition	Attrition Data	CC		0.47	1.98	1.77
		NORTH		1.29	1.33	1.13
		NATIONAL CAPITAL		0.53	0.75	0.80
		SOUTH		1.28	0.39	0.70
		EAST - I		1.33	0.87	0.84
		EAST - II		1.47	0.93	0.84
		WEST - I		2.98	1.76	1.50
		WEST - II		1.79	1.01	0.68
		HYDRO		3.43	1.20	1.55
		MINING		1.54	3.95	2.38
		TOTAL* (Excel JV & Subsidiary)		1.37	1.13	1.04
Employee Productivity	Gen /Employee	MU	9.72	9.96	10.72	11.19
	Man/MW*	Ratio	0.67	0.63	0.61	0.55
Average hours of training per yr per employee by gender by employee category	Training imparted to employees (Nos)					
	Executives	Male	7,562	9,479	7,766	7,322
		Female	416	705	420	393
	Non-Executives	Male	9,772	9,718	8,896	8,439
		Female	466	573	458	451
	Total		18,216	20,475	17,540	16,605
	Average no. of hours training per employee(PMI)					
	Executives	Male	52.83	47.56	52.46	51.42
		Female	57.98	47.66	56.14	50.27
	Non-Executives	Male	55.85	47.57	49.81	50.97
		Female	52.37	47.57	50.94	48.63
Total		54.56	47.57	51.17	51.09	
Vigilance	No. of Training Conducted in various stations	No.	29	19	41	51
	No. of Employee Participated	No.	745	529	1,230	1,371
Total No. of Work related Fatalities by Region and Gender*	Reportable Accident*	Fatal	10	15	14	14
		Non Fatal	19	28	31	27
	Total Workforce* (Regular + Contract)	No.	47,070	51,294	58,732	62,597
	Total Man hours	Hrs	12,33,19,841	12,17,35,030	14,94,70,697	15,22,45,904
	Total Man Days Lost	Days	61,288	91,216	85,911	79,731
	Frequency Rate	FR	0.24	0.33	0.30	0.27
	Incident Rate	IR	0.62	0.84	0.77	0.65

* including extension projects in operating stations

Key Data at a Glance

Name of Indicator		Unit	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Injury Rate		IR ¹	0.05	0.07	0.06	0.05
Occupational Disease Rate		---	0	0	0	0
Percentage of employees eligible to retire in the next 5 and 10 years broken down by job category and by region						
Retirement in 5 Yrs (in %)	CC	Executives	15.81	18.64	24.48	25.34
		Non- Executives	28.92	30.91	31.25	31.52
	EAST - I	Executives	13.33	14.38	17.36	19.91
		Non- Executives	31.27	21.25	19.95	22.48
	EAST - II	Executives	17.92	10.86	11.97	13.86
		Non- Executives	34.50	33.57	32.77	29.73
	HYDRO	Executives	10.69	12.14	8.82	13.33
		Non- Executives	6.41	17.54	11.11	12.07
	MINING	Executives	13.95	10.26	12.42	12.99
		Non- Executives	22.53	5.88	12.5	14.29
	NATIONAL CAPITAL	Executives	20.00	19.54	23.38	24.36
		Non- Executives	24.39	32.78	34.63	32.05
	NORTH	Executives	13.25	17.29	18.82	22.56
		Non- Executives	18.02	37.13	35.63	39.45
	SOUTH	Executives	10.70	22.18	26.58	28.71
		Non- Executives	32.06	28.97	29.98	33.64
	WEST - I	Executives	10.45	11.34	13.5	16.72
		Non- Executives	23.40	8.56	9.78	10.62
	WEST - II	Executives	8.29	16.25	18.07	19.7
		Non- Executives	5.00	24.83	27.34	28.29
Retirement in 10 Yrs (in %)	CC	Executives	25.33	25.14	49.87	49.11
		Non- Executives	27.47	30.65	69.6	70.2
	EAST - I	Executives	25.09	20.27	38.26	40.08
		Non- Executives	38.12	33.25	50.6	55.35
	EAST - II	Executives	22.09	15.36	29.34	29.9
		Non- Executives	20.69	17.14	48.44	44.13
	HYDRO	Executives	19.29	12.40	23.97	27.27
		Non- Executives	18.86	8.77	15.87	17.24
	MINING	Executives	20.23	14.36	26.09	27.92
		Non- Executives	30.02	29.41	18.75	21.43
	NATIONAL CAPITAL	Executives	25.07	23.66	47.14	46.29
		Non- Executives	37.73	24.66	63.52	62.08
	NORTH	Executives	18.82	24.76	42.07	44.78
		Non- Executives	30.86	36.21	67.7	74.05
	SOUTH	Executives	13.05	23.88	49.58	47.7
		Non- Executives	20.18	35.60	62.01	63.27
	WEST - I	Executives	11.44	20.64	34.93	35.98
		Non- Executives	12.77	17.12	33.91	41.37
	WEST - II	Executives	12.44	19.51	41.41	39.75
		Non- Executives	20.00	30.60	53.06	54.07

CORPORATE MEMBERSHIP

No	Organization
1.	All India Management Association
2.	All India Organization of Employees
3.	American Society For Quality
4.	Association Membership of National Association of Vocational Training Providers (NAVTP)
5.	British Society Council
6.	British Standards Institute
7.	Central Board of Irrigation And Power
8.	Centre For Public Sector Studies
9.	Coal Preparation Society of India
10.	Committee For International Commission on Large Dams (India)
11.	Confederation of Indian Industry
12.	CSO forum
13.	Delhi Productivity Council
14.	Doble Engineering Company
15.	Excellence Enhancement Centre, EEC
16.	Federation of Indian Chambers of Commerce & Industry
17.	Forum of The Hydro Power Producers In Satluj Basin
18.	Global Carbon Capture And Storage Institute, Australia
19.	Global Compact Network
20.	Indian Trust For Rural Heritage And Development
21.	India Habitat Centre
22.	Indian Geotechnical Society
23.	Indian Green Building Council
24.	Indian Institution of Plant Engineers (IIPE)
25.	Indian International Centre
26.	Indian Member Committee (World Energy Council)

No	Organization
27.	Indian Society For Tock Mechanics And Tunneling Technology
28.	International Council Of Large Electric System (CIGRE)
29.	International Electric Research Exchange (IERE) Japan
30.	International Geosynthetics Society
31.	International Tunneling Association (India)
32.	National Association of Corrosion Engineers (NACE) International
33.	National Accreditation Board For Testing & Calibration Laboratories
34.	National Safety Council, India
35.	National Safety Council, USA
36.	North American Electric Reliability Corporation
37.	Petrotech Society
38.	Power HR Forum
39.	Shri Ram Centre For Industrial Relations And Human Resources
40.	South Asia Forum For Infrastructure Regulation
41.	Standing Conference of Public Enterprises (SCOPE)
42.	Strategic Human Resource Management (SHRM)
43.	The Energy And Resources Institute (TERI)
44.	TERI- BCSD
45.	The Foreign Correspondents Club of South Asia
46.	The Indian CFO Forum
47.	The Institute of Company Secretaries of India
48.	The Institute of Internal Auditors of India
49.	The Mining, Geological & Metallurgical Institute of India
50.	Thought Arbitrage Research Institute
51.	World Economic Forum

Key Data at a Glance

LIST OF BENEFICIARIES

No.	Name of the Beneficiary
1.	A&N
2.	AP CPDCL (Andhra Pradesh)
3.	AP EPDCL (Andhra Pradesh)
4.	AP NPDCL (Andhra Pradesh)
5.	AP SPDCL (Andhra Pradesh)
6.	Arunachal Pradesh
7.	ASEB (Assam)
8.	AVN (Rajasthan)
9.	BESCOM (Karnataka)
10.	BSEBL (Bihar)
11.	BRPL (Delhi)
12.	BYPL (Delhi)
13.	CESCO (Karnataka)
14.	Chandigarh
15.	CSEB (Chhattisgarh)
16.	D&D
17.	DNH
18.	DVC
19.	GEB/ GUVNL (Gujarat)
20.	GESCOM (Karnataka)
21.	GOA
22.	HVPN (Haryana)
23.	HESCOM (Karnataka)
24.	SEB (Himachal Pradesh)
25.	Indian Railways

No.	Name of the Beneficiary
26.	SEZ (Indore)
27.	J&K
28.	ID VVN (Rajasthan)
29.	JSEB (Jharkhand)
30.	JVN (Rajasthan)
31.	KSEB (Kerala)
32.	MSEDCL (Maharashtra)
33.	Meghalaya
34.	MES (Delhi)
35.	MESCOM (Karnataka)
36.	Mizoram
37.	MPPTCL (Madhya Pradesh)
38.	Nagaland
39.	NDMC (Delhi)
40.	NVN
41.	GRIDCO (Orissa)
42.	Pondicherry
43.	Power Grid
44.	PSPCL (Punjab)
45.	Sikkim
46.	TANGEDCO (Tamil Nadu)
47.	TPDDL (Delhi)
48.	UPPCL (Uttar Pradesh)
49.	UPCL (Uttarakhand)
50.	WBSEDCL (West Bengal)

GRI G4 Index : 'In accordance- Comprehensive' & EUSS Compliant



GENERAL STANDARD DISCLOSURES					
General Standard Disclosures	Section reference		Omissions (if any)	External assurance	
	Section Name	Page No			
Strategy and Analysis					
G4-1	CMD statement	02-03		Yes; Independent Assurance Statement	
G4-2	Power Sector Scenario, opportunities & Challenges	34-44			
Organizational Profile					
G4-3	Organization's Profile	15		Yes; Independent Assurance Statement	
G4-4	Organization's Profile	15			
G4-5	About the Report	14			
G4-6	Organization's Profile	24			
G4-7	Organization's Profile	21			
G4-8	Organization's Profile	22			
G4-9	About the Report	13-14			
G4-10	Labour Practices/Key Data at a Glance	88-90/110			
G4-11	Human Rights	77			
G4-12	Organization's Profile	22-23			
G4-13	About the Report	13-14			
Commitment to External Initiatives					
G4-14	Environmental Performance	68			Yes; Independent Assurance Statement
G4-15	Organization's Profile	15			
G4-16	Governance, Ethics and Integrity	33			

General Standard Disclosures	Section reference		Omissions (if any)	External assurance
	Section Name	Page No		
Identified Material Aspects and Boundaries				
G4-17	About the Report	13-14		Yes; Independent Assurance Statement
G4-18	About the Report	13-14		
G4-19	Stakeholder Engagement	51		
G4-20	About the Report	13-14		
G4-21	About the Report	13-14		
G4-22	About the Report	14		
G4-23	About the Report	14		
Stakeholder Engagement				
G4-24	Stakeholder Engagement	45		Yes; Independent Assurance Statement
G4-25	Stakeholder Engagement	46-49		
G4-26	Stakeholder Engagement	52-53		
G4-27	Stakeholder Engagement	53-54		
Report Profile				
G4-28	About the Report	13		Yes; Independent Assurance Statement
G4-29	About the Report	13		
G4-30	About the Report	13		
G4-31	About the Report	14		
G4-32	About the Report	13-14		
G4-33	Organizational Policies	26-27		
Governance				
G4-34	Governance, Ethics and Integrity	32-33		Yes; Independent Assurance Statement
G4-35	Governance, Ethics and Integrity	32-33		
G4-36	Governance, Ethics and Integrity	33		
G4-37	Stakeholder Statement	52-54		
G4-38	Governance, Ethics and Integrity	33		
G4-39	Governance, Ethics and Integrity	31		
G4-40	Governance, Ethics and Integrity	32		
G4-41	Governance, Ethics and Integrity	28		
G4-42	Governance, Ethics and Integrity	33		
G4-43	Social Performance	94		
G4-44	Governance, Ethics and Integrity	31		
G4-45	Governance, Ethics and Integrity	32-33		
G4-46	Governance, Ethics and Integrity	29-30		
G4-47	Stakeholder Engagement	52-53		
G4-48	Governance, Ethics and Integrity	31		
G4-49	Governance, Ethics and Integrity	31		
G4-50	Governance, Ethics and Integrity	31		
G4-51	Governance, Ethics and Integrity	31		

General Standard Disclosures	Section reference		Omissions (if any)	External assurance
	Section Name	Page No		
G4-52	Governance, Ethics and Integrity	31		
G4-53	Stakeholder Engagement	53-54		
G4-54	Governance, Ethics and Integrity	31		
G4-55	Governance, Ethics and Integrity	31		
Ethics and Integrity				
G4-56	Governance, Ethics and Integrity	28		Yes; Independent Assurance Statement
G4-57	Governance, Ethics and Integrity	28		
G4-58	Governance, Ethics and Integrity	29-30		
SPECIFIC STANDARD DISCLOSURES				
General Standard Disclosures	Section reference		Omissions (if any)	External assurance
	Section Name	Page No		
Economic Performance Indicators				
ASPECT: Economic Performance				
G4-DMA	Corporate Objective	05-06		Yes; Independent Assurance Statement
G4-EC1	Economic Performance/Key Data at a Glance	55/105		
G4-EC2	Environmental performance	67		
G4-EC3	Key Data at a Glance	105		
G4-EC4	Economic Performance	56		
ASPECT: Market Presence				
G4-DMA	Economic Performance	56		Yes; Independent Assurance Statement
G4-EC5	Social Performance	89		
G4-EC6	Social Performance	89		
ASPECT: Indirect Economic Impacts				
G4-DMA	Economic Performance	56		Yes; Independent Assurance Statement
G4-EC7	Economic Performance/ Stakeholder Engagement	52/46		
G4-EC8	Social Performance	98-104		
ASPECT: Procurement Practices				
G4-DMA	Organization's Profile	23		Yes; Independent Assurance Statement
G4-EC9	Organization's Profile	22		
Environment Performance Indicators				
ASPECT: Material				
G4-DMA	Environmental Performance	62		Yes; Independent Assurance Statement
G4-EN1	Environmental Performance/ Key Data at a Glance	62/106		
G4-EN2	Environmental Performance	63		

General Standard Disclosures	Section reference		Omissions (if any)	External assurance
	Section Name	Page No		
ASPECT : Energy				
G4-DMA	Environmental Performance	63		Yes; Independent Assurance Statement
G4-EN3	Environmental Performance/ Key Data at a Glance	63/106-108		
G4-EN4		NA	<i>NTPC considered scope of boundary within the plant. Thus, it is not applicable to the organization.</i>	
G4-EN5	Environmental Performance/ Key Data at a Glance	63/106-108		
G4-EN6	Environmental Performance/ Key Data at a Glance	63-64/108		
G4-EN7	Environmental Performance/ Key Data at a Glance	64/108		
ASPECT : Water				
G4-DMA	Environmental Performance	68		Yes; Independent Assurance Statement
G4-EN8	Environmental Performance/ Key Data at a Glance	68/108		
G4-EN9	Environmental Performance	68		
G4-EN10	Environmental Performance	63		
ASPECT : Biodiversity				
G4-DMA	Environmental Performance	69-70		Yes; Independent Assurance Statement
G4-EN11	Environmental Performance	70		
G4-EN12	Environmental Performance	70		
G4-EN13	Environmental Performance	70		
G4-EN14	Environmental Performance	70		
ASPECT: Emissions				
G4-DMA	Environmental Performance	71		Yes; Independent Assurance Statement
G4-EN15	Environmental Performance/ Key Data at a Glance	71/108		
G4-EN16		NA	<i>NTPC is in the business of power generation which does not purchase electricity, steam etc. from other organization. Hence, this indicator is not applicable to the organization.</i>	
G4-EN17			<i>NTPC being in the process of calculating Indirect GHG emission (Scope 3)</i>	
G4-EN18	Environmental Performance/ Key Data at a Glance	65, 71/108		
G4-EN19	Environmental Performance	71		

General Standard Disclosures	Section reference		Omissions (if any)	External assurance
	Section Name	Page No		
G4-EN20	Environmental Performance/ Key Data at a Glance	71/108		
G4-EN21	Key Data at a Glance	108		
ASPECT : Effluents and Waste				
G4-DMA	Environmental Performance	71		Yes; Independent Assurance Statement
G4-EN22	Environmental Performance	72-73		
G4-EN23	Environmental Performance/ Key Data at a Glance	72/109		
G4-EN24	Environmental Performance	73		
G4-EN25	Environmental Performance	71		
G4-EN26	Environmental Performance	70		
ASPECT : Product and Services				
G4-DMA	Environmental Performance	76		Yes; Independent Assurance Statement
G4-EN27	Environmental Performance	76		
G4-EN28		NA	<i>NTPC is a power generating company and hence this Disclosure is not applied to organization.</i>	
ASPECT : Compliance				
G4-DMA	Environmental Performance	76		Yes; Independent Assurance Statement
G4-EN29	Environmental Performance	76		
ASPECT : Transport				
G4-DMA	Environmental Performance	76		Yes; Independent Assurance Statement
G4-EN30	Environmental Performance	76		
ASPECT : Overall				
G4-DMA	Environmental Performance	61-62		Yes; Independent Assurance Statement
G4-EN31	Environmental Performance	109		
ASPECT : Supplier Environmental Assessment				
G4-DMA	Environmental Performance	76		Yes; Independent Assurance Statement
G4-EN32	Environmental Performance	76		
G4-EN33	Environmental Performance	76		
ASPECT : Environmental Grievance Mechanisms				
G4-DMA	Environmental Performance	61-62		Yes; Independent Assurance Statement
G4-EN34	Environmental Performance	76		

General Standard Disclosures	Section reference		Omissions (if any)	External assurance
	Section Name	Page No		
Social Performance Indicators				
HUMAN RIGHTS				
ASPECT : Investment				
G4-DMA	Social Performance	77		Yes; Independent Assurance Statement
G4-HR1	Social Performance	77		
G4-HR2	Social Performance	77		
ASPECT : Non-discrimination				
G4-DMA	Social Performance	78		Yes; Independent Assurance Statement
G4-HR3	Social Performance	78		
ASPECT : Freedom of Association and Collective Bargaining				
G4-DMA	Social Performance	77		Yes; Independent Assurance Statement
G4-HR4	Social Performance	77		
ASPECT : Child Labor				
G4-DMA	Social Performance	78		Yes; Independent Assurance Statement
G4-HR5	Social Performance	78		
ASPECT : Forced of Compulsory Labor				
G4-DMA	Social Performance	78		Yes; Independent Assurance Statement
G4-HR6	Social Performance	78		
ASPECT : Security Practices				
G4-DMA	Social Performance	78		Yes; Independent Assurance Statement
G4-HR7	Social Performance	78		
ASPECT : Indigenous Rights				
G4-DMA	Social Performance	78		Yes; Independent Assurance Statement
G4-HR8	Social Performance	78		
ASPECT : Assessment				
G4-DMA	Social Performance	78		Yes; Independent Assurance Statement
G4-HR9	Social Performance	77		
ASPECT : Supplier Human Rights Assessment				
G4-DMA	Social Performance	78		Yes; Independent Assurance Statement
G4-HR10	Environmental performance	76		
G4-HR11	Social Performance	78		
ASPECT : Human Rights Grievance Mechanisms				
G4-DMA	Social Performance	78		Yes; Independent Assurance Statement
G4-HR12	Social Performance	91		

General Standard Disclosures	Section reference		Omissions (if any)	External assurance
	Section Name	Page No		
SOCIETY				
ASPECT : Local Communities				
G4-DMA	Social Performance	85		Yes; Independent Assurance Statement
G4-SO1	Social Performance	82-85		
G4-SO2	Social Performance	80		
ASPECT : Anti-corruption				
G4-DMA	Governance, Ethics and Integrity	28		Yes; Independent Assurance Statement
G4-SO3	Governance, Ethics and Integrity	29-30		
G4-SO4	Governance, Ethics and Integrity	30		
G4-SO5	Governance, Ethics and Integrity	30-31		
ASPECT : Public Policy				
G4-DMA	Social Performance	88		Yes; Independent Assurance Statement
G4-SO6	Social Performance	88		
ASPECT : Anti-competitive Behavior				
G4-DMA	Governance, Ethics and Integrity	28		Yes; Independent Assurance Statement
G4-SO7	Social Performance	88		
ASPECT : Compliance				
G4-DMA	Social Performance	88		Yes; Independent Assurance Statement
G4-SO8	Social Performance	88		
ASPECT : Supplier Assessment for Impacts on Society				
G4-DMA	Environmental Performance	76		Yes; Independent Assurance Statement
G4-SO9	Environmental Performance	76		
G4-SO10	Environmental Performance	76		
ASPECT : Grievance Mechanisms for Impacts on Society				
G4-DMA	Social Performance	87		Yes; Independent Assurance Statement
G4-SO11	Social Performance	88		
LABOR PRACTICE AND DECENT WORK				
ASPECT : Employment				
G4-DMA	Social Performance	88-89		Yes; Independent Assurance Statement
G4-LA1	Social Performance/Key Data at a Glance	88/110		
G4-LA2	Social Performance	90		
G4-LA3	Social Performance	89		
ASPECT : Labor/Management Relations				
G4-DMA	Social Performance	90		Yes; Independent Assurance Statement
G4-LA4	Social Performance	90		

General Standard Disclosures	Section reference		Omissions (if any)	External assurance
	Section Name	Page No		
ASPECT : Occupational Health and Safety				
G4-DMA	Social Performance	91		Yes; Independent Assurance Statement
G4-LA5	Social Performance	91		
G4-LA6	Social Performance/Key Data at a Glance	92/111-112		
G4-LA7	Social Performance	92		
G4-LA8	Social Performance	92		
ASPECT : Training and Education				
G4-DMA	Social Performance	93		Yes; Independent Assurance Statement
G4-LA9	Social Performance/Key Data at a Glance	93/111		
G4-LA10	Social Performance	94		
G4-LA11	Social Performance	89, 93		
ASPECT : Diversity and Equal Opportunity				
G4-DMA	Social Performance	89-90		Yes; Independent Assurance Statement
G4-LA12	Social Performance	90		
ASPECT : Equal Remuneration for Women and Men				
G4-DMA	Social Performance	89		Yes; Independent Assurance Statement
G4-LA13	Social Performance	89		
ASPECT : Supplier Assessment for Labor Practices				
G4-DMA	Environmental performance/ Social performance	76/78		Yes; Independent Assurance Statement
G4-LA14	Environmental performance	76		
G4-LA15	Environmental performance	76		
ASPECT : Labor Practices Grievance Mechanisms				
G4-DMA	Social Performance	91		Yes; Independent Assurance Statement
G4-LA16	Social Performance	91		
PRODUCT RESPONSIBILITY				
ASPECT : Customer Health and Safety				
G4-DMA	Social Performance	96		Yes; Independent Assurance Statement
G4-PR1	Social Performance	96		
G4-PR2	Social Performance	97		
ASPECT : Product and Service Labelling				
G4-DMA	Social Performance	96-97		Yes; Independent Assurance Statement
G4-PR3		NA	<i>NTPC sells Electricity from its power generating station located across India to the bulk customers. Hence, this indicator is not applicable to the organization.</i>	

General Standard Disclosures	Section reference		Omissions (if any)	External assurance
	Section Name	Page No		
G4-PR4	Social Performance	97		
G4-PR5	Social Performance	96		
ASPECT : Marketing Communications				
G4-DMA	Social Performance	97		Yes; Independent Assurance Statement
G4-PR6		NA	<i>NTPC generates electricity which is being supplied to their bulk customers through power grid transmission and distribution lines. Thus, the electricity is not banned or disputed products in the market. Hence, this disclosure is not applicable to the organization.</i>	
G4-PR7	Social Performance	97		
ASPECT : Customer Privacy				
G4-DMA	Social Performance	95		Yes; Independent Assurance Statement
G4-PR8	Social Performance	95		
ASPECT : Compliance				
G4-DMA	Social Performance	97		Yes; Independent Assurance Statement
G4-PR9	Social Performance	97		
STANDARD DISCLOSURES FOR THE ELECTRIC UTILITY SECTOR (EUSS)				
General Standard Disclosures	Section reference		Omissions (if any)	External assurance
	Section Name	Page No		
Organizational Profile				
G4-10 (ADR)	Social performance	89		Yes; Independent Assurance Statement
G4-11 (ADR)	Social performance	77		
G4-EU1	Organization's Profile	16, 24		
G4-EU2	Organization's Profile	16		
G4-EU3		NA	<i>NTPC is not in the business of power distribution and so, it does not directly deal with the demand side management. Hence, this disclosure is not applicable to the organization.</i>	
G4-EU4		NA		
G4-EU5	Environmental Performance	66		
Economic				
Availability and Reliability				
G4-DMA	Social performance	97		Yes; Independent Assurance Statement
G4-EU10	Social performance	97		

General Standard Disclosures	Section reference		Omissions (if any)	External assurance
	Section Name	Page No		
Demand-Side Management				
G4-DMA	Social performance	97		Yes; Independent Assurance Statement
Research and Development				
G4-DMA	Economic Performance	56-57		Yes; Independent Assurance Statement
Plant Decommissioning				
G4-DMA		NA	<i>Nuclear Power sites is not in the scope of Report. Hence, this disclosure is not applicable to the organization.</i>	Yes; Independent Assurance Statement
System Efficiency				
G4-EU11	Power Sector Scenario, Opportunities & Challenges	34-35		Yes; Independent Assurance Statement
G4-EU12		NA	<i>The company is not directly involved in the business of transmission and distribution.</i>	
Environmental				
Materials				
G4-DMA	Environmental Performance	63		Yes; Independent Assurance Statement
G4-EN1 (ADR)	Key Data at a Glance	109		
Water				
G4-DMA	Environmental Performance	68		Yes; Independent Assurance Statement
G4-EN8 (ADR)	Environmental Performance/ Key Data at a Glance	68/108		
Biodiversity				
G4-DMA	Environmental Performance	70		Yes; Independent Assurance Statement
G4-EN12 (ADR)	Environmental Performance	70		
G4-EU13	Environmental Performance	70		
Emissions				
G4-EN15 (ADR)	Key Data at a Glance	108		Yes; Independent Assurance Statement
G4-EN16 (ADR)		NA	<i>NTPC is in the business of power generation which does not purchase electricity, steam etc. from other organization. Hence, this indicator is not applicable to the organization.</i>	
G4-EN21 (ADR)	Key Data at a Glance	108		
Effluents and Waste				
G4-DMA	Environmental Performance	71-72		Yes; Independent Assurance Statement
G4-EN22 (ADR)	Environmental Performance	72-73		
G4-EN23 (ADR)	Environmental Performance	72		

General Standard Disclosures	Section reference		Omissions (if any)	External assurance
	Section Name	Page No		
Social				
Labour Practices and Decent Work				
Employment				
G4-DMA	Social Performance	88-89, 92		Yes; Independent Assurance Statement
G4-LA1 (ADR)	Key Data at a Glance	110		
G4-EU15	Key Data at a Glance	112		
G4-EU17	Social Performance	89		
G4-EU18	Social Performance	93		
Occupational Health and Safety				
G4-LA6 (ADR)	Social Performance	86		Yes; Independent Assurance Statement
Human Rights				
Freedom of Association and Collective Bargaining				
G4-DMA	Social Performance	77		Yes; Independent Assurance Statement
Society				
Local Communities				
G4-DMA	Stakeholder Engagement	49-50		Yes; Independent Assurance Statement
G4-EU22	Social Performance	86		
Disaster/Emergency Planning and Response				
G4-DMA	Social Performance	92		Yes; Independent Assurance Statement
Product Responsibility				
Customer Health and Safety				
G4-DMA	Social Performance	96		Yes; Independent Assurance Statement
G4-EU25	Social Performance	96		
Access				
G4-DMA	Social Performance	95	<i>NTPC's core business is generation of electricity and the company is not directly involved in the business of transmission and distribution. Hence, this indicator is not applicable to the organization.</i>	Yes; Independent Assurance Statement
G4-EU26		NA		
G4-EU27		NA		
G4-EU28		NA		
G4-EU29		NA		
G4-EU30	Social Performance	97		
Provision of Information				
G4-DMA	Social Performance	92, 96-97		Yes; Independent Assurance Statement



Team NTPC at Work



Young Brigade of NTPC-Executive Trainees

Glossary

15

Abbr.	Details
A&N	Andaman & Nicobar
AAQMS	Ambient Air Quality Monitoring Station
AC	Alternating Current
ACC	Air Cooled Condenser
ACV	Actual Calorific Value
ADB	Asian Development Bank
AFGC	Ammonia Flue Gas Conditioning
AMP	Advanced Management Programme
APC	Auxiliary Power Consumption
APH	Air Pre Heater
APIO	Assistant Public Information Officer
APM	Administrative Price Mechanism
APTEL	Appellate Tribunal for Electricity
ASCI	Administrative Staff College on India
ASI	Archaeological Survey of India
AT&C	Aggregate Technical and Commercial
ATDC	Apparel Training & Design Centre
AWRS	Ash Water Recirculation System
BCSD	Business Council for Sustainable Development
BD	Business Development
BEE	Bureau of Energy Efficiency
BFP	Boiler Feed Pump
BG	Bank Guarantee
BHEL	Bharat Heavy Electrical Ltd.
BOP	Balance of Plant
BP	Basic Pay
BPL	Below Poverty Line
BRICS	Brazil Russia India China and South Africa
BTPS	Badarpur Thermal Power Station

Abbr.	Details
BU	Billion Units
CAG	Comptroller and Auditor General of India
CAGR	Compounded Annual Growth Rate
CAPEX	Capital Expenditure
CARE	Credit Analysis and Research Ltd.
CBIP	Central Board of Irrigation & Power
CBOs	Community Based Organisations
CC	Corporate Centre
CCP	Combined Cycle Plant
CD	Community Development
CDA	Community Development Authority
CDM	Clean Development Mechanism
CDSL	Central Depository Services (India) Limited
CEA	Central Electricity Authority
CEMS	Continuous Emission Monitoring System
cenPEEP	Centre for Power Efficiency & Environmental Protection
CEO	Chief Executive Officer
CERC	Central Electricity Regulatory Commission
CFC	Chloro fluoro Carbons
CFD	Computational Fluid Dynamics
CFL	Compact Fluorescent Lamps
CFO	Chief Forest Officer
CIC	Cluster Innovation Centre
CIGRE	International Council of Large Electric Systems
CII	Confederation of Indian Industry
CIL	Coal India Limited
CISF	Central Industrial Security Force
CMC	Canteen Management Committee

Glossary

Abbr.	Details
CMD	Chairman and Managing Director
CO ₂	Carbon Dioxide
COC	Cycles of Concentration
COP	Communication on Progress
CP	Corporate Planning
CPCB	Central Pollution Control Board
CPIO	Central Public Information Officer
CPSE	Central Public Sector Enterprise
CREDA	Chattisgarh State Renewable Energy Development Agency
CRISIL	Credit Rating Information Services of India Ltd.
CRM	Customer Relationship Management
CRO	Chief Risk Officer
CSA	Coal Supply Agreement
CSI	Customer Satisfaction Index
CSR	Corporate Social Responsibility
CTU	Central Transmission Utility
CVO	Central Vigilance Officer
CW	Cooling Water
D&B	Dun & Bradstreet
DA	Dearness Allowance
DC	Designated Commission
DDCMIS	Distributed Digital Control Monitoring and Information System
Deptt.	Department
DGH	Directorate General of Hydrocarbons
Dir.	Director
DISCOMs	Distribution Companies
DM Water	Demineralised Water
DMC	Designated Microscopy Centre
DNV	Det Norske Veritas
DOT	Directly Observed Treatment
DPE	Department of Public Enterprises
DRCs	Disability Rehabilitation Centres
DSIJ	Dalal Street Investment Journal
DSM	Demand Side Management
EA	Electricity Act
EPI	Economic Performance Indicator
ECBC	Energy Conservation Building Code
ECS	Electronic Clearing Service
ED	Executive Director
EDC	Employee Development Centre

Abbr.	Details
EIA	Environmental Impact Assessment
EMC	Enhancing Managerial Competence
EMS	Environmental Management System
EN	Environmental Performance Indicator
EOC	Engineering Office Complex
EPC	Engineering Procurement Construction
EPS	Electric Power Survey
ER	Eastern Region
ERM	Enterprise Risk Management
ERMC	Enterprise Risk Management Committee
ERP	Enterprise Resource Planning
ES Certi	Energy Saving Certificates
ESP	Electrostatic Precipitator
ETP	Effluent Treatment Plants
EUSS	Electric Utility Sector Supplement
EVOICE	Employees Voluntary Organization for Initiative in Community Empowerment
FAPPC	Fly Ash Portland Pozzolana Cement
FGC	Flue Gas Conditioning
FICCI	Federation of Indian Chambers of Commerce and Industry
FII	Foreign Institutional Investors
FI	Financial Institution
FRP	Financial Restructuring Plan
FSA	Fuel Supply Agreement
FTL	Fluorescent Tube Light
FY	Fiscal Year
GCN	Global Compact Network
GCV	Gross Calorific Value
GDP	Gross Domestic Product
GHG	Green House Gases
GJ	Giga Joules
GM	General Manager
GOI	Government of India
GPP	Gas Power Plant
GPTW	Great Place to Work
GRI	Global Reporting Initiative
GSAs	Gas Supply Agreements
GSI	Geological Survey of India
GT	Gas Turbine
GW	Giga Watt
HAC	House Allotment Committee
H ₂	Hydrogen
H ₂ SO ₄	Sulphuric Acid

Abbr.	Details
HCA	Host Country Approval
HCFC	Hydro Chloro Fluoro Carbon
HCl	Hydrochloric acid
HFO	Heavy Fuel Oil
HIV	Human Immunodeficiency Virus
HMLs	High Mast Lighting
HPGCL	Haryana Power Generation Corporation Limited
HPSV	High Pressure Sodium Vapours Lamps
HO	Head Quarters
HR	Human Resources
HR	Human Rights Performance Indicator
HVDC	High Voltage Direct Current
HW	Hardware
IB	Intelligence Bureau
ICD Policy	Initial Community Development Policy
ICRA	Investment Information and Credit Rating Agency
ICT	Information and Communication Technology
ICU	Intensive Care Unit
IDAAS	Integrated Data Acquisition and Analysis System
IERE	International Electric Research Exchange
IGCAR	India Gandhi Centre for Advanced Research
IGCC	Integrated Gasification Combined cycle
IGP	Inspector General of Police
IPE	Indian Institute of plant Engineers
IMS	Integrated Management System
IOCL	Indian oil corporation Limited
IPGCL	Indraprastha power Generation Corporation Limited
IPMA	International Project Management Association
IPMCS	Implementation of integrated project Management and control system
IIP	Independent power producers
IPS	Indian police service
ISD	Investor service department
ISO	International Organization for Standardization
IT	Information Technology
ITES	Information Technology Enabled services
ITIS	Industrial Training Institutes
ITRHD	Indian Trust for Rural Heritage and Development
IUCN	International Union for the Conservation of Nature
JNNSM	Jawaharlal Nehru National Solar Mission

Abbr.	Details
JV	Joint Ventures
Kg	Kilograms
KL	Kilo Litres
km	Kilometer
kwh	Kilo watt hour
kwp	Kilo watt peak
LA	Labor Practices & Decent performance indicators
LED	Light Emitting Diode
LPG	Liquified Petroleum Gas
LOA	Letter of Award
LWA	Light Weight Aggregate
LWTP	Liquid Waste Treatment Plant
M&V	Measurement and Verification
MCM	Million cubic metre
MDGS	Millennium development Goals
MDI	Management development institute
MF	Mutual Funds
MGR	Merry go round
MHA	Ministry of home Affairs
ml	Milli liters
MOP	Ministry of Power
MMSCMD	Million Metric standard cubic meter per day
MNRE	Ministry of New & Renewable Energy
MOEF	Ministry of Environment and Forests
MOU	Memorandum of understanding
Pa	Megapasca
MT	Metric Ton
MMT	Million Metric Ton
MU	Million Units
MW	Mega Watt
NBC	National Bipartite Committee
NBPPL	NTPC BHEL Power Project Limited
NCF	National Culture Fund
NCR	National Capital Region
NCTPP	National Capital Thermal Power Plant
NCYM	National Competition for Young Managers
NECL	North Eastern Coalfields Limited
NEFI	NTPC Executives Federation of India
NEFT	National Electronic Funds Transfer
NELP	New Exploration Licensing Policy
NESCL	NTPC Electric Supply Company Limited
NETRA	NTPC Energy Technology Research Alliance

Glossary

Abbr.	Details
NFCH	National Foundation for Communal Harmony
NGOs	Non Governmental Organizations
NHR	Net Heat Rate
NH3	Ammonia
NIOH	National Institute for the Orthopedically Handicapped
NIT	Notice Inviting Tender
NMEEE	National Mission On Enhanced Energy Efficiency
NOCET	NTPC Open Competition for Executive Talent
NJPC	NTPC Joint Productivity Council
NRIs	Non Resident Indian
NO2	Nitrogen Dioxide
NOX	Oxides of Nitrogen
NR	Northern Region
NSDL	National Security Depository limited
NSPCL	NTPC SAIL Power Company Pvt. Limited
NVG	National Voluntary Guidelines
NVVN	NTPC Vidyut Vyapar Nigam Ltd
O &G	Oil &Grease
O &M	Operations and Maintenance
OBC(CL +NCL)	Other Backward Class (Creamy Layer + No Creamy Layer)
ODP	Ozone Depleting Potential
ODS	Ozone Depleting Substances
OHSAS	Occupational Health and Safety Assessment System
OS	Operation Services
OTSS	One Time Settlement Scheme
PADO	Performance Analysis & Diagnostic Optimization
PAF	Plant Availability Factor
PAPs	Project Affected People
PAT	Perform, Achieve and Trade
PAT	Profit After Tax
PBDIT	Profit Before Depreciation Interest and Tax
PC	Professional Circles
PDC-RVM	Polarisation Depolarisation Current – Recovery Voltage Measurement
PE	Partially Electrified
PEM	Performance Evaluation Matrix
PEPSE	Performance Evaluation of Power System Efficiency
PFC	Power Finance Corporation

Abbr.	Details
PHCs	Primary Health Centre
PhD	Doctor of Philosophy
PI	Process Interface
PICs	Public Information Centre
PLC	Plant Level Committee
PLF	Plant Load Factor
PM	Particulate Matter
PMC	Project Monitoring Committee
POP	Persistent Organic Pollutants
PMI	Power Management Institute
PMS	Paryavaran Monitoring System
PPA	Power Purchase Agreements
PPEs	Personal Protective Equipments
PR	Product Responsibility Performance Indicator
PSDF	Power System Development Fund
PSE	Public Sector Enterprise
PSU	Public Sector Undertaking
PV	Photo Voltaic
Q4E	Quest for Excellence
QC	Quality Circle
QCFI	Quality Circle Federation of India
QMS	Quality Management System
QPR	Quarterly Progress Report
3 R's	Reduce, Recycle & Reuse
R&D	Research & Development
R&M	Renovation & Modernization
R&R	Resettlement and Rehabilitation
RAC	Research Advisory Council
RAP	Rehabilitation Action Plan
R-APDRP	Re-Structured-Accelerated Power Development & Reforms Program
RCM	Reliability Centered Maintenance
RED	Regional Executive Director
REDG	Renewable Energy and Distributed Generation
RES	Renewable Energy Sources
RFD	Result Framework Document
RFID	Radio Frequency Identifier
RGCCP	Rajiv Gandhi Combined Cycle Power Project
RGVY	Rajiv Gandhi Grameen Vidyutikaran Yojna
RJPC	Regional Joint Productivity Council
RLDC	Regional Load Dispatch Centers
RNTCP	Revised National Tuberculosis Control Programme

Abbr.	Details
RO	Reverse Osmosis
RPCs	Regional Power Committees
RPO	Renewable Purchase Obligation
RTI	Right to Information
SA-8000	Social Accountability 8000 Standard
SAC	Scientific Advisory Council
SACS	Special Analytical and Computational Sciences
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SC	Scheduled Caste
SCCL	Singareni Collieries Company Limited
SCOPE	Standing Conference of Public Enterprises
SD	Sustainable Development
SEB	State Electricity Board
SEBI	Stock Exchange Board of India
SERC	State Electricity Regulatory Commission
SES	Socio Economic Survey
SHRM	Strategic Human Resource Management
SIE	Social Impact Evaluation
SLC	Shop Level Committee
SMILE	Strategic Management Initiative for Leadership Effectiveness
SO	Society Performance indicators
SO ₂	Sulphur Dioxide
SPCB	State Pollution Control Board
SPM	Suspended Particulate Matter
SR	Southern Region
ST	Scheduled Tribes
STCS	Solar Thermal Cooking System

Abbr.	Details
STP	Sewage Treatment Plant
STPP	Super Thermal Power Plant
SW	Software
T&D	Transmission and Distribution
TAC	Township Advisory Committee
TANGE-	Tamil Nadu Generation and Distribution DECO Corporation Limited
TEKL	Transformers and Electricals Kerala Limited
TERI	The Energy and Resources Institute
TL	Tube Light
TOR	Term of Reference
TSDF	Treatment Storage and Disposal Facilities
TSS	Total Suspended Solids
UE/DE	Un-Electrified/ De-Electrified
UMPP	Ultra Mega Power Project
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UNGC	United Nations Global Compact
USAID	United States agency for International Development
VAM	Vapour Absorption Machine
VDAC	Village Development Advisory Committees
VFD	Variable Frequency Drive
WBCSD	World Business Council for Sustainable Development
WCC	Water Cooled Condenser
WEC	World Energy Council
WHRB	Waste Heat Recovery Boiler
WR	Western Region

Awards and Recognition



NTPC has been honored with "Ascender of the Decade" Award –Platts Award

NTPC has been honored with "Ascender of the Decade" Award by Platts for achieving 56th position in 2015 from 90th position in the year 2006 as a Top Energy Company globally. The Award was received by Shri P. K. Sinha, General Manager (CC) at a function held in Singapore on 27th October, 2015.

In the year 2016, NTPC has been ranked 46th position in 2016.

Platts IPP ranking

NTPC Limited ranked #2 in Independent Power Producers and Energy Traders Globally, in Platts Top 250 Global Energy Company Rankings – 2015 instituted by Platts. In 2016, as well NTPC has retained ranked #2 in the same rankings.

Forbes Global List

NTPC has been awarded is on #400 biggest public company in the World on the Forbes Global List 2016

SCOPE AWARD for RTI Act 2005

Jury for the SCOPE Meritorious Awards under the chairmanship of Justice R.C. Lahoti, former Chief Justice of India and distinguished panel of eminent persons has recently selected the Winners of the SCOPE Awards 2014-2015. SCOPE Meritorious Award for RTI Act 2005 Compliance has been given to NTPC Limited.

All India Public Relations Society of India Awards-2016

Corporate Communication and PR of NTPC felicitated for performance at All India Public Relations Society of India Awards 2016 in various categories. These prestigious Awards were presented on Dec 16th-18th, 2016 at PRSI Annual Conference held in Kolkata.

Corporate Centre-1st prize for PR in action (Crisis Communication - case study based on Kudgi Media Management Experience),

2nd Prize for Use of Social Media for PR and Branding, 2nd prize for Special/Prestigious Publication-(Coffee Table Book on Bio Diversity) and 3rd prize for Corporate Website.

Rihand -1st prize-Corporate Film Hindi

Vindhyachal - 1st and

Western Region- I, 3rd prize for- e News letter

Awards and Recognition

NTPC BAGS 5 AWARDS AT PRCI GLOBAL COMMUNICATION CONCLAVE

NTPC Ltd., was awarded the coveted "Chanakya Award for National Achievers-2016" in the category of Excellence in Project Management instituted by Public Relations Council of India (PRCI). Shri K. Ravindran, AGM (PR), WR1-HQ and Shri Elbert C, DGM (PR), SRHQ received the award on behalf of NTPC from Dr Sashi Panja, Minister for Women & Child Development and Social Welfare, Govt. of West Bengal at the 10th PRCI Global Communication Conclave-2016 held in Kolkata on 22nd January, 2016. NTPC Ltd also won four PRCI Corporate Collaterals Awards for Public Relations. NTPC SRHQ received Crystal Award for its CSR Brochure and Bronze Award for its in-house journal "Dakshin Dhvani". WR 1HQ House Journal won Silver Award for its House Magazine "Paschim Prakash" and e-Magazine "Paschim Varta" received Special Appreciation. Shri R.S. Kahlon, IAS, Chairman, Kolkata Port Trust presented the PRCI Corporate Collaterals Awards on 23rd January, 2016 at the 10th PRCI Global Communication Conclave-2016 held in Kolkata.

NTPC Korba bags Rajbhasha Award

NTPC Korba station has bagged the Chhattisgarh Rajbhasha Ayog Award 2016 for significant contribution in the area of Rajbhasha from CG Rajbhasha Ayog. Shri Prakash Tiwari, Group General Manager, NTPC Korba received the award from Shri Dayal Das Baghel, Hon'ble Minister for Culture & Tourism, Govt of Chhattisgarh here at Korba on 19th Feb 2016. The award was presented during inaugural function of two-day regional meet of Chhattisgarh Rajbhasha Ayog.

NTPC Jhanor receives Award in Good Green Governance

NTPC Jhanor was awarded the prestigious Srishti G-Cube Runners up trophy in the Srishti Good Green Governance Awards 2016 in the Infra-Utilities category. In a glittering function held on 22nd April 2016, EARTH DAY, the award was presented by the ex Chief Minister of Uttarakhand, Shri B. S. Koshyari, in the India International Centre, New Delhi. The Award was received by Shri. Biswarup Basu, General Manager, NTPC Jhanor Gandhar.



Poll Based Investor Communication Award to NTPC

NTPC Ltd has been conferred the Research Investor Communication Award amongst the "Large Corporates" category on March 4, 2016 for following transparent and fair communication practices by Research Bytes in an independent poll having participation of over 3000 Fund Managers/Analysts/Non Institutional Investors. The award recognises NTPC's effort in building a strong ecosystem based on consistent and regular communication with investors across the globe in a fair and transparent manner. The award was received by Shri K. Biswal, Director Finance, Shri Sudhir Arya, Executive Director, Finance and Smt. Sangeeta Bhatia, General Manager (Finance) at a ceremony held at BSE in Mumbai.



NTPC Awarded As Top Indian Power Brand 2016

NTPC has been given Indian Power Brands 2016 Award as "Most Recognizable Brands of Indian Origin" at the Power Brands Glam Summit of Planman Media held in New Delhi. The award was received by Shri K M Prashanth, AGM, Corporate Communication NTPC from Dr. Najma A Heptulla, Minister of Minority Affairs on 18th March, 2016.

Award has been given based on comprehensive research conducted by the Indian Council of Market Research. NTPC is listed amongst the select few "Most Recognizable Brands of Indian Origin" within the industry category.

Awards and Recognition

Vindhyachal receives National Project Excellence Award 2016

Vindhyachal has bagged the IPMA International Project Excellence's Silver Award for the year 2016 for project management on 17th November, 2016. The award was received by Rajesh Kumar Bhatnagar, Executive Director of Vindhyachal project along with S. K. Roy, Executive Director, Operations from the IPMA organizers at an award ceremony held in Warsaw, Poland. Global industrial giant GE got gold for their South Africa Escom project and China State Construction got bronze medal for Mauritius Airport Expansion project on the occasion. IPMA International Project Excellence Award recognizes projects from different countries, industries and organizations and motivates project teams to develop and improve project management. It supports professional project management in achieving high performance and identifies projects as examples of excellent project management.

WR-I HQ bags prestigious ABCI Award

WR-I HQ e-newsletter 'E-paschim varta' bags Bronze award in the e-zine category at the 55th ABCI (Association of Business Communicators of India) Annual Awards night held at Mumbai on 18th March 2016. Shri M.R. Chandurkar, Founding Chairman, Ipca Laboratories presented the award to NTPC. The award was received by Shri K. Ravindran, AGM (PR) and Smt Kriti Dutta, Dy Manager (PR). Earlier the e-zine also received the award from PRCI at Kolkata.

MNRE Excellence Award for Solar Thermal Cooking System at NTPC Dadri

Shri Piyush Goyal, Minister of State (IC) for Power, Coal and New & Renewable Energy on 29th April, 2016 has awarded NTPC for set up of Solar Thermal Cooking System (STCS) at Dadri Main Plant Canteen in the 'Industrial Category' for taking special initiative in adopting CST system in their establishment. The program was organized by MNRE and supported by UNIDO and UNDP.

Sh. Anil Kumar Jha, Director (Technical), NTPC Ltd, Sh. Upendra Tripathy, Secretary, MNRE, Sh. Tarun Kapoor, Joint Secretary MNRE and other senior officials from the power sector were also present on this occasion.

NTPC Awarded - "Maharatna of the Year in the Manufacturing"

NTPC, India's largest power utility has been awarded "Maharatna of the Year in the Manufacturing Category" by leading Investment Journal DSIJ at a function held in New Delhi. The award was presented by Shri Mahesh Sharma, Minister of State, (Independent Charge) for Culture, Tourism and Civil Aviation to Shri K. Biswal, Director (Finance), NTPC. Shri Sudhir Arya, Executive Director (Finance), NTPC, Smt. Sangeeta Bhatia, General Manager (Finance), Shri Sanjay Padode, Director, DSIJ were present on the occasion.

NTPC Ltd wins Dun & Bradstreet Corporate Awards 2016

NTPC Ltd was honored with the Dun & Bradstreet Corporate Awards 2016 for excellence in the power sector. Shri A K Rastogi, ED (Law) & Company Secretary, NTPC received the award on behalf of NTPC Ltd from Shri Anil Swarup, Secretary, Ministry of Coal, Govt of India in the presence of Dr Bibek Debroy, Member, NITI Ayog on 31st May 2016 at a function held at Mumbai.

The Dun & Bradstreet Corporate Awards 2016 seeks to recognize and felicitate corporate India's leading companies honoring them for their consistent performance in their respective sectors.

NTPC Runners Up at Business Management Simulations

AIMA organized the 25th National Competition for Business Management Simulations (NMG) in May, 2016 in Bhubaneswar, Bangalore and Mumbai & New Delhi. Regional winners qualified to contest in the National Grand Finale in Delhi on 27th May, 2016. NTPC team comprising of Shri Ashish Aggarwal, Shri K.M. Prashanth, Shri Rakesh Arora, Shri Arush Rastogi emerged as the National Runners-up.

The team has qualified to represent India at the Asian Management Games (AMG) and subsequently at the Global Management Challenge (GMC)



NTPC best in PSU-Great Places to Work

In a study carried out by Great Place to Work and The Economic Times, NTPC was adjudged as the Best Company to work for 2016 in the Public Sector category. It was also rated as the best company to work in Energy, Oil and Gas Industry. NTPC ranked amongst top companies to work in India by Great place to Work and Economic Times Survey on 1st July, 2016. NTPC is 1st rank in PSUs and Oil, Gas and Energy sector and 30th overall with IOCL at 34.

The award was received by Shri U P Pani, Director(HR) and Shri S. Ghosh, RED WR at a function held in Mumbai.



NTPC- Best Maharatna PSU and Top Performer in Power Generation

NTPC has been bestowed The Best Maharatna PSU and Top Performer in the Power Generation Sector Award by the leading Information Service Company Dun & Bradstreet on 22nd August, 2016. The Awards were received by Shri K. Biswal, Director (Finance) NTPC from Shri Anil Swarup, Secretary, Coal at a function held in New Delhi. Shri A. K. Rastogi, Executive Director & Company Secretary and Shri S. P. Singh, General Manager (HR) NTPC were present on the occasion.



NTPC Bags three Corporate Communication Awards

NTPC has bagged 1st Prize of SCOPE Corporate Communication Excellence Awards 2016 in the Category of "Brand building through inclusive Growth initiatives", 2nd Prize in the Category of "Best Internal Communication Programme" and Consolation Prize in the Category of "Crisis Handling" at the Corporate Communication Summit organized by SCOPE in New Delhi on 21st July, 2016.

Shri Saptarshi Roy, ED to CMD & ED (Corporate Planning and Corporate Communication) and Shri P. K. Sinha, GM(Corporate Communication) received the award from Shri Sudhir Chaudhary, Senior Editor & Business Head of Zee News and Padma Shri Dr. K. K. Aggarwal, in the presence Shri Nirmal Sinha, Chairman, SCOPE & CMD, HHEC; Dr. U. D. Choubey, Director General, SCOPE amidst other dignitaries.

NTPC Dadri bags Top Plant 2016 Power Mag Award

The National Capital Power Station, Dadri (NTPC Dadri) has bagged the Top Plant 2016 award by prestigious Power Magazine of USA in the coal fired generation category. The award was announced by Power Magazine on October 01, 2016. The Power Magazine is the official publication of Electric Power covering Business & Technology for the Global Generation Industry. In the October 2016 issue of POWER magazine the winning Attributes of National Capital Power Station, Dadri (coal based Station) has been mentioned as "Consistently one of NTPC's top performing plants, despite age and challenges in the Indian power market. Plant staff has worked to implement a range of innovative approaches to increase plant efficiency without increasing costs, and has achieved 100% fly ash recycling and implementing a zero liquid discharge system.

Awards and Recognition



NTPC Bags 1st Prize for Product/Model Display at the Coal Summit

NTPC bagged 1st prize for "Product/Model Display" at the Coal Summit and Expo 2016 held in New Delhi on 6th-7th September, 2016. The award was received by Shri Partha Mazumdar, General Manager (Coal Mining), NTPC and his team from Shri A. N. Jha, IAS, Secretary MOEF & CC and Shri S Bhattacharya, IAS, CMD, Coal India Ltd.



NTPC Limited awarded as Leading Infra Company in the Power Sector

NTPC Limited has been awarded as Leading Infra Company in the Power Sector at Dun & Bradstreet Infra Awards 2016 for Excellent Financial & Operational Performance in Power Generation Category on 8th November, 2016. The award was presented by Shri Mansukh L Mandaviya, Minister of State for Road Transport & Highways, Shipping and Chemicals & Fertilizers, Govt. of India. The award was received by Shri K. Biswal, Director (Finance) and Shri A. K. Rastogi, Company Secretary on behalf of NTPC.



Good Corporate Citizen Award to NTPC

NTPC conferred Good Corporate Citizen Award instituted by PHD Chamber of Commerce, New Delhi. Shri Dinesh Agarwal, General Manager, Sustainability Development, NTPC received the award from Sri Sri Ravi Shankar on 26th November, 2016



NTPC awarded for Employee Productivity

NTPC has been awarded for Employee Productivity at the 4th Governance Now PSU Awards 2016 held in New Delhi. The Award was received by Shri S. P. Singh, Executive Director (HR) and Shri Sanjay Singh, General Manager (HR) from Shri Ram Vilas Paswan, Union Minister of Consumer Affairs, Food and Public Distribution. Shri Jitendra Kapoor, Legendary Actor and other dignitaries were present on the occasion.

Express Intelligent PSU Award to NTPC

NTPC got the prestigious "Express Intelligent PSU Award" for the Data centre Transformation (Winner). This is in recognition for the SAP Hardware refresh & unique migration of SAP system to a new Hardware platform in a virtualized environment. NTPC is the first PSU to carry out the cross platform migration. Sh. S. V. Srinivas Rao, GM (IT), CC received this award from Sh M. M. Ali, Deputy Chief Minister of Telangana in a glittering function held at Hyderabad on 19th November, 2016



NTPC NETRA and Talcher Kaniha Awarded

NTPC NETRA was awarded for Institutional Research, Training and Excellence in Academia at the 10th Eneria Awards held in New Delhi on 29th December, 2016. The Best Performing Thermal & Conventional Energy Project Award to NTPC Talcher Kaniha at the prestigious Eneria Awards

NTPC Jhanor recognized for its outstanding CSR practices

In the Global CSR Excellence and Leadership Awards presented on the concluding day of the World CSR Congress 2016, NTPC Jhanor received awards for Best Corporate Social Responsibility Practices and for Community Development. Shri. Biswarup Basu, General Manager, NTPC Jhanor was conferred the CSR Leadership Award. The Awards were received by Shri. Biswarup Basu, General Manager and Ms. Vijaya Lakshmi Muralidharan, Head of HR, NTPC Jhanor from Dr. Bhaskar Chatterjee, DG & CEO, Indian Institute of Corporate Affairs and Shri Yogesh Dhingra, CFO, Blue Dart at Taj Lands End Hotel, Mumbai on 18th February, 2016

Environment Award won by NTPC Kawas

NTPC Kawas has won Golden Jubilee Shri Nimish Vashi Award 2014-15 from South Gujarat Chamber of Commerce & Industry (SGCCI) for outstanding performance in Environment Conservation & Pollution Control. Shri S. S. Mani, GM (Kawas), AGM (O&M), AGM (O) & AGM (EMG-Chem) received the award from President, Indian Merchant's Chamber, Mumbai (Chairman-VIP Industries) Mr. Dilip Piramal on 16th April, 2016 at Surat.



NTPC Awarded as Best Thermal Power Utility by CBIP

NTPC awarded as the Best Thermal Power Utility of the country by Central Board of Irrigation and Power (CBIP) on 29th December, 2016 at a function held in New Delhi Union Minister of State for Water Resources, River Development and Ganga Rejuvenation Dr. Sanjeev Kumar Balyan presented the award to Shri Gurdeep Singh CMD NTPC. Shri A. K. Jha Director, (Technical) NTPC was also honored by CBIP on the occasion for his outstanding contribution to the sector

NTPC Korba and Kawas bags Global Energy Management Award 2017

NTPC Korba and Kawas has received Global Energy Management Award 2017 in Thermal Power category for excellence in energy efficiency. Shri Prakash Tiwari, Group General Manager, Korba and Shri S. S. Mani, GM, Kawas received the award at a function in New Delhi on 12th January, 2017. The award was given by South Asia Forum for Energy Efficiency (SAFE) to acknowledge and encourage entrepreneurship that promotes efficiency, especially in the energy sector.

Awards and Recognition

Meritorious Award for Environment Initiatives to NTPC, Simhadri

Meritorious Award for Environment Initiatives to NTPC - Simhadri from the District Collector on the occasion of Republic Day 2017. Over 4 Lakh trees have been planted under Green Visakha Project at various locations identified by Visakhapatnam Urban Development Authority (VUDA) and State Forest Department.

Safety Award for Kayamkulam

NTPC Kayamkulam bagged the Award for outstanding Safety Performance from the Factories & Boilers Dept., Govt of Kerala for the year 2015-16. Addl. General Manager (O&M) Shri V Krishnakumar & Shri S J David, AGM (MM) received the award from the State Minister for Fisheries & Excise Shri K Babu at a function held at Ernakulam on 04.03.2016.



NTPC awarded with BT-CSR Awards

NTPC has bagged 2 prestigious awards in CSR- Public Sector Enterprise of the Year and Swachh Bharat Categories in Bureaucracy Today-CSR excellence awards held on 14th July, 2016 recognizing social initiatives of corporate organisations and contribution of those who have driven social change in India through their unique CSR initiatives.

Shri Anant Geete, Union Minister of Heavy Industries and Public Enterprises presented the award to Shri S K Jain, ED (CSR, R & R and HR). Shri D K Patankar, GM (CSR), Shri G Sridhar, AGM (CSR) were also present on the occasion. Shri U. P. Pani, Director (HR), NTPC congratulated the CSR team on the award and encouraged them to continue with their efforts towards community

Talcher Kaniha bagged two prestigious National Safety Awards

Talcher Kaniha bagged two prestigious National Safety Awards during the occasion as winners under scheme of Accident Free Year & Lowest Average Frequency Rate in Accidents for 2014 at the Vishwakarma Rashtriya Puraskar-2014 award for the performance year-2014 held in New Delhi on September 16, 2016. Shri Bandaru Dattatreya, Union Minister of State (I/C) for Labour and Employment presented the award

NTPC conferred with Golden Peacock Award for CSR

NTPC conferred Golden Peacock Award for Corporate Social Responsibility constituted by Institute of Directors (IOD), New Delhi. Award was received by Shri D. K. Sood, ED (CSR & R&R) and RED (DBF) and Shri D. K. Patankar, GM (CSR) on behalf of NTPC from His Holiness Sri Ravi Shankar, Founder of The Art of Living at Bangalore on 20th January, 2017



NTPC Kawas Awarded for Energy Conservation

NTPC Kawas bagged the National Energy Conservation Awards 2015 in Gas Power Station Category by Shri Piyush Goyal, Hon'ble Minister of State (Independent Charge) for Power, Coal and New & Renewable Energy during the National Energy Conservation Day function held in New Delhi today on 14th December, 2015. The award was received by Shri A. K. Jha, CMD, NTPC along with Shri S. S. Mani, GM (Kawas) for excellence in Energy Conservation and Management. Shri P. K. Pujari, Secy to Govt. of India, Ministry of Power and senior officials of the Ministry and Bureau of Energy Efficiency were present on the occasion. Shri S. K. Seth, AGM (Law), NTPC Lucknow also received the Best Nodal State officer (UP) for encouraging and enabling high participation in the National Painting Competition.

Director (Technical) wins Business Leader Award

Shri A K Jha, Director (Technical), NTPC wins business leader of the year award in the energy sector on 3rd March, 2016 in Mumbai at the Chemtech Leadership and Excellence Awards 2016.



NTPC Awarded for Skill Development

NTPC has been conferred prestigious Gold Trophy & Certificate of Merit "ASSOCHAM Award 2015-16" and adjudged "Best PSU" for implementing vocational training programmes in PSU Category. The Award was received by Shri U. P. Pani, Director (HR) from Shri Rajiv Pratap Rudy, Hon'ble Minister of State (I/C) for Skill Development, Entrepreneurship & Parliamentary Affairs on 15th March, 2016 during "Summit-cum-Award on Skilling India" in New Delhi. NTPC has contributed immensely for last 03 years (FY 2012-13, 2013-14 & 2014-15) towards Skill Development by adopting 18 existing Govt. ITIs and setting up 8 new it is in different parts of country spanning in 16 states. Company is also implementing employment linked Skill Development Projects to provide vocational training in various skill sets/ sectors to 30000 youths through Ministry of Skill Development & Entrepreneurship, Govt. of India and National Skill Development Corporation (NSDC).

Director (Operations) awarded

Shri K. K. Sharma, Director (Operations), NTPC has been awarded for his outstanding contribution in the field of Fuel Science by Shri Harsh Vardhan, Union Minister of Science and Technology and Ministry of Earth Sciences. Shri K.K. Sharma was honored at the International Conference Nex Gen Technologies for Mining & Fuel Industry held in Vigyan Bhawan New Delhi on 15th February, 2017



NTPC-Ramagundam receives Vishwakarma Rashtriya Puraskar

NTPC-Ramagundam MGR Department team won the prestigious Vishwakarma Rashtriya Puraskar-2014 award for the performance year-2014 under Category-A at a programme held in New Delhi on September 16, 2016. Shri Bandaru Dattatreya, Union Minister of State (I/C) for Labour and Employment presented the award to the team comprising Shri T. Naga Madhuleti, Shri K. Nagesh, Md. Osman, Shri K. Raja Mahendar Reddy, Shri Ch. Kamalakar and Shri Ch. Deval Reddy.

Employee from NTPC Kawas awarded with Gujarat State Shramvir Award

Shri Rajesh Gulabbhai Patel from EMD dept. of NTPC Kawas has been awarded Gujarat State Shramvir Award on 20th Feb. 2016 for his work on EOT Crane under Production & Productivity category by Labour & Employment Dept. of Govt. of Gujarat for the year 2014-15.

Awards and Recognition

Director (Technical) wins Business Leader Award

Shri A. K. Jha, Director (Technical), NTPC conferred with Honorary Fellowship by Shri Amitabh Kant, CEO, NITI Aayog (National Institution for Transforming India) under the aegis of Centre for Excellence in Project Management at its 24th Global Symposium 2016 held in New Delhi on 12th December, 2016. Shri Jha has been given this recognition for his leadership and contribution in shaping NTPC to its present glory through Innovative Mindset and Project Management processes.



NTPC Employees Awarded



President of India, Shri Pranab Mukherjee presented National Award-2016 to Shri Dilip Kumar, Sr. Stenographer (HR), NTPC Kawas for the Empowerment of Persons with Disabilities on the occasion of International Day of Disabled Persons (Divyangjan) in New Delhi on 3rd Dec. 2016. In spite of his visual impairment, Shri Dilip Kumar has shown excellent and appreciable performance at work since his association with NTPC Kawas from 2003. With his dedicated efforts he has completed MA in Hindi & MBA.

Sushuma Kumari AGM (OS), CC receiving "Women of Excellence Awards - 2016". (Power Sector - Senior Level) from Institute of Public Enterprise (IPE).

Dr. Sasmita Dash, MD (O&G), AGM (Medical), NTPC-Ramagundam conferred "Certificate of Appreciation" by Institute of Public Enterprise (IPE), Hyderabad. Dr. Dash received the award from IPS Swati Lakra, Additional Commissioner of Police, Hyderabad in recognition of her leadership traits, contribution and career achievements.

President of India, Shri Pranab Mukherjee

Assurance Statement

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URS Verification Pvt. Ltd. (URS), commissioned by NTPC Limited (hereinafter 'company'), has performed the independent assurance of their corporate sustainability report for the financial year 2014-15 and 2015-16 in its printed format, against the Global Reporting Initiative (GRI-G4) Guidelines and Electric Utility Sector Supplement (EUSS). The assurance process has been conducted in accordance with AA1000AS (2008).

The intended users of this assurance statement are the readers of the NTPC's Sustainability Report 2014-15, 2015-16. The management of NTPC is responsible for engagement with stakeholders, identification of material issues, collection, analysing and reporting of all information provided in the Report. URS was not involved in the drafting of the report. Our sole responsibility is to provide independent assurance on the accuracy and reliability of information included, and on the underlying systems and processes established to collecting, analysis and reporting.

The assurance engagement is based on the assumption that the data and information provided to us is complete and true. URS expressly disclaims any liability or co responsibility for any decision a person or entity would make based on this Assurance statement.

Scope of Assurance

URS has been engaged to provide external assurance to the company's sustainability report for year 2014-15 and 2015-16 in line with Accountability's AA1000 Assurance Standard 2008 (AA 1000AS). We have not verified the accuracy and

reliability of quantitative data and sustainability performance information stated in the report. We are providing a Type 1 Moderate Level of assurance in accordance with AA1000AS (2008) and "In accordance" comprehensive option of GRI-G4 and EUSS compliant. The scope of the assurance includes the following:

- Evaluation of the disclosed information in the Report, including the systems and the processes NTPC has in place for adherence to the three Accountability Principles (Inclusivity, Materiality and Responsiveness) as required for a Type 1, moderate level of assurance, in accordance with AA1000AS (2008).
- Evaluation of disclosed information in line with the principle of Global Reporting Initiative-G4 and Electric Utility Sector supplement (EUSS) guidelines.
- Evaluation of the additional principles of Completeness and Neutrality, as set out in URS's Protocol for Verification of Sustainability Reporting.

Approach and Methodology

As part of the independent assurance, URS assurance team planned and carried out the assurance engagement based on offsite document review and on-site visits. The URS team has visited Sustainable Development Group, Environmental Management Group, Fuel Management Group Fuel Transportation Group, Director HR and Director Finance etc at corporate office. URS team also visited Thermal Power Stations at Faridabad, Dadri and



Farraka between 17/02/2017 to 22/03/2017 for verifying systems and processes established to collecting, analysis and reporting. No external stakeholders were interviewed as part of this assurance engagement. The following activities were undertaken during assessment:

- Conducted desk review of documentary evidences such as Environmental Compliances of Stations, Fuel Consumption of the stations, Generation of the stations, Energy Efficiency Studies carried out by Stations, Incidence/Accident reporting System, Grievances Mechanism, CSR Expenses records, Sustainability projects undertaken by individual plants, Labour and HR practices at stations and other relevant information and documentation made available by NTPC as requested by URS;
- Conducted interviews with the core team of the Sustainable Development Group involved in preparation of the Sustainability Report and Senior Management of NTPC Limited including Company Secretary, AGM-SD Group, DGM-EMG, AGM-Safety, GM-CSR, GM-Corporate Planning, GM-Fuel Management, GM-Fuel Transportation, GM-Ash Utilization, AGM-HR, AGM-Finance and GGM-Dadri, GM-Faridabad and GM-Farakka.
- Assessment of information against Global Reporting Initiatives (GRI-G4, Electric Utility Sector supplement) Disclosures frameworks and principles of Accuracy, Balance, Clarity, Comparability, Reliability and Timeliness.
- Performed sample-based reviews of the mechanisms for implementing the company's policies, as described in the report, and for determining material issues to be included in the Report;
- Review of NTPC Limited's internal mechanisms for Sustainable Development and Other policies, data and information systems for collection, aggregation, analysis and review at Corporate SD Group Level and Power Stations.

The above mentioned scope of work was conducted in line with URS standard procedures and guidance for external Assurance of Sustainability Reports, based on current best practice in independent assurance. The work was planned and carried out to provide type 1 moderate level of assurance and we believe it provides a reasonable basis for our conclusions.

URS Findings and Recommendations

Based on our review we have the following conclusions:

- The information and data included in the scope of our assurance are accurate, reliable and free from material mistake or misstatement. The information is presented in a clear, understandable and accessible manner and the report provides a fair and balanced representation of activities during the FY2014-15 and FY2015-16.
- The organization has established appropriate systems for the collection, aggregation and analysis of relevant information as per GRI-G4 Economic, Social, Human resource, Labour, Environment and EUSS disclosure requirements.
- The Report properly reflects the organization's alignment to the implementation of the AA1000AS (2008) principles of Inclusivity, Materiality and Responsiveness in its operations.
- The reported financial data and information in this report are based on the data from NTPC's Annual Reports 2014-15 and 2015-16, which are subject to a separate independent audit process.
- The internal assurance system can be strengthened for specific and standard disclosures data related to material aspects on the information submitted by the power plants and regional offices.
- In its future efforts, NTPC needs to report comprehensively for supply chain, GHG inventory and climate changes

Adherence to AA1000AS principle

Based on the work undertaken, nothing came to our attention to suggest that the Report does not properly describe the requirements of the General Standard and the Specific Standard Disclosures for the "In accordance"-Comprehensive option of GRI-G4.

Without affecting our assurance opinion, we also provide the following observations. We have evaluated the Report's adherence to the following principle on a scale of 'Good', 'Acceptable' and 'Need Improvement'.

Inclusivity

The stakeholder engagement process is well established to identify sustainability challenges and concern of diverse stakeholder group considering NTPC operations and business. We have not come across any material evidences

that would lead us to conclude that NTPC has not applied the principle of inclusivity in engaging their stakeholders. Different departments engage regularly with their relevant stakeholders through multiple engagement channels. The material issues emerging from the stakeholder engagement were collected and prioritized, and the results are fairly reflected in the Report. In our view, the level at which the Report adheres to this principle is "Good".

Materiality

NTPC has developed the structured process to identify significant material issues pertinent to its business and stakeholders expectations. NTPC has not missed out any significant, known material issues/topic in the current Report. However, the continued investment and expansion of its power generation activities in Hydro and Renewable means that there is a need to enhance the scope for the company to incorporate the impact of its activities on its overall materiality matrix. In our view, the level at which the Report adheres to this principle is "Acceptable".

Responsiveness

Based on our observation, interview and documentation we believe that NTPC has applied the principle of responsiveness with respect to its stakeholders. The report provides a comprehensive response to the issue and stakeholder concern relating to its activities, through the assurance process it is evident that NTPC Limited is responding to concerns raised by specific stakeholder groups and seeking proactive discussions to ascertain their views and progress towards addressing any concern. During on-site visit, it was apparent that stakeholder views are listened to and that site level management are willing to work with local communities to achieve appropriate solution. In our view, the level at which the Report adheres to this principle is 'Good'.

Additional Parameters as per URS's Protocol

Completeness: The reporting boundary is limited to operational power plants. Within the reporting boundary, we do not believe that the Report omits relevant information that would influence stakeholder assessments or decisions. The level at which the Report adheres to this principle is 'Good'.

Neutrality: The Company has reported its sustainability aspects in terms of content and presents a neutral tone; in our view, the level at which the Report adheres to this principle is 'Good'.

Limitations and Exclusions

- Scope of assurance is limited to the boundary defined in the report and the period of 1/04/2014 to 31/03/2016 related to all GRI-G4 Guidelines and specific performance indicators for 23 operating power stations, 9 solar PV plants and 1 hydro power only. Subsidiaries and Joint Ventures, Mining and Construction projects are excluded from Assurance activity. Energy Indirect GHG emission (wherever applicable) is also excluded.
- The Assurance relied on the documentation maintained by the company.
- The scope of assurance does not cover the statements in the report that describe companies approach, strategy, aim, expectation, aspiration, beliefs or intentions

Statement of Independence, Impartiality and Competence

URS is an Independent Auditing Agency in the field of Management Certifications, Social Audits, Water Audits, Energy and Electrical Safety Audit, Third Party Inspections, Product Certification. URS is having qualified team of Environment, Energy, Climate Change and Social professionals. The Assurance team has extensive experience in conducting verification and assurance over environmental, social, ethical and health and safety assessments. URS assurance team were not involved in the preparation of any statements or data included in the Report except for this Assurance Statement. We have conducted this assurance independently, and there has been no conflict of interest. URS maintain complete impartiality towards any people interviewed.

URS Verification Pvt. Ltd.



Ashok Kumar

Scheme Manager-Energy and Sustainability Services
Noida, India
22/04/2017



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NTPC Ladies Club participating in Swachh Bharat activities



NTPC ladies club contributing towards welfare of the society



NTPC's First Super Critical Power Station-Sipat





A Maharatna Company

NTPC Limited

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