Dear Members,

Your Directors are pleased to present the 41st Annual Report on the business and operations of the Company along with audited financial statements for the year ended March 31, 2017.

Financial Year 2016-17 had been yet another year of achievements for your Company. With the addition of 3,845 MW capacity (including 395 MW through Subsidiary Companies) during the year, total installed capacity of your Company (including subsidiaries & JVs) as on 31.03.2017 was 50,498 MW.

With the commissioning of 660 MW of Solapur Thermal, 245 MW of Mandsaur Solar, 18 MW of Rojmal Wind and 250 MW of BRBCL (subsidiary of NTPC) after 31.03.2017, group capacity of your Company has become 51,671 as on 31.07.2017.

Major highlights for the year 2016-17 are:

- Power projects of 3,845 MW were commissioned.
- Declared 2,190 MW Power Projects on commercial generation including 510 MW of Solar Projects.
- PLF of 78.59% as against all India PLF of 59.88% with two stations of your Company recording more than 90% PLF. Three stations of your Company achieved top three position and 11 stations (including JV) are in top 25 stations of the country in terms of PLF.
- Excellent MOU rating by Government of India for the year 2015-16.
- Group Capital Expenditure (CAPEX) including CAPEX of JV/subsidiaries of NTPC for the year 2016-17 was ₹ 33,991 crore.
- 100% realization of current bills from customers.
- Revenue from operations was ₹ 78,273.44 crore and total revenue was ₹ 79,342.30 crore. Net Profit after Tax (PAT) was ₹ 9,385.26 crore.
- Dividend of ₹ 4.78 per share comprising interim dividend of ₹ 2.61 per equity share paid in February 2017 and recommended final dividend of ₹ 2.17 per equity share for the year 2016-17, subject to approval of the shareholders.
- Cash contribution of ₹ 5,998.36 crore to Government of India’s exchequer through dividend, dividend distribution tax and income tax in the financial year 2016-17.
- Market capitalization of ₹ 1,36,874.64 crore as on 31.03.2017.
- Planted approx. 1 crore trees during 2016-17 to mitigate the GHG emissions arising out of plant operations, thereby bringing total to about 3.2 crore planted trees till end of 31.03.2017.
- About 7.15 crore fly ash bricks produced by fly ash brick plants of your Company’s stations, which are being utilised in plant and township construction works.
- Honoured with Business Standard ‘Star PSU Award’.
- Bestowed with India Pride Award 2016-17 for best performance in the Power Sector.
- 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.
- Bagged Golden Peacock Award for Excellence in Training from Institute of Directors for the year 2016.
- NTPC has been given SCOPE Award for RTI Act 2005 Compliance at SCOPE Meritorious Awards.
- NTPC conferred Good Corporate Citizen Award instituted by PHD Chamber of Commerce, New Delhi.

You will appreciate the fact that the company recorded growth and excellent performance despite numerous challenges before the sector.
## 1. FINANCIAL RESULTS (STAND ALONE)

<table>
<thead>
<tr>
<th>Particulars</th>
<th>2016-17</th>
<th>2015-16</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>₹ Crore</td>
<td>US $ Mn*</td>
</tr>
<tr>
<td>Revenue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue from operations (including energy sales, consultancy, energy consumed internally)</td>
<td>78,273.44</td>
<td>11,908.33</td>
</tr>
<tr>
<td>Other income</td>
<td>1,068.86</td>
<td>162.61</td>
</tr>
<tr>
<td>Total Revenue</td>
<td>79,342.30</td>
<td>12,070.94</td>
</tr>
<tr>
<td>Expenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel</td>
<td>47,572.19</td>
<td>7,237.52</td>
</tr>
<tr>
<td>Employee benefits expense</td>
<td>4,394.60</td>
<td>657.93</td>
</tr>
<tr>
<td>Finance costs</td>
<td>3,597.20</td>
<td>547.27</td>
</tr>
<tr>
<td>Depreciation, amortization and impairment expense</td>
<td>5,920.82</td>
<td>900.78</td>
</tr>
<tr>
<td>Other expenses</td>
<td>5,092.38</td>
<td>774.74</td>
</tr>
<tr>
<td>Total expenses</td>
<td>66,507.19</td>
<td>10,118.24</td>
</tr>
<tr>
<td>Profit before exceptional items, tax and rate regulated activities</td>
<td>12,835.11</td>
<td>1,952.70</td>
</tr>
<tr>
<td>Add: Movements in Regulatory deferral account balances</td>
<td>335.74</td>
<td>51.08</td>
</tr>
<tr>
<td>Profit before exceptional items and tax</td>
<td>13,170.85</td>
<td>2,003.78</td>
</tr>
<tr>
<td>Exceptional items – impairment loss on investment</td>
<td>782.95</td>
<td>119.12</td>
</tr>
<tr>
<td>Profit before tax</td>
<td>12,387.90</td>
<td>1,884.66</td>
</tr>
<tr>
<td>Tax expense</td>
<td>3,002.64</td>
<td>456.81</td>
</tr>
<tr>
<td>Profit for the year</td>
<td>9,385.26</td>
<td>1,427.85</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Appropriations:</th>
<th>2016-17</th>
<th>2015-16</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>₹ Crore</td>
<td>US $ Mn*</td>
</tr>
<tr>
<td>Transfer to bonds/ debentures redemption reserve</td>
<td>1,667.08</td>
<td>253.63</td>
</tr>
<tr>
<td>Transfer to general reserve</td>
<td>4,500.00</td>
<td>684.62</td>
</tr>
<tr>
<td>Dividend paid</td>
<td>3,595.03</td>
<td>546.94</td>
</tr>
<tr>
<td>Tax on dividend paid</td>
<td>727.79</td>
<td>110.72</td>
</tr>
</tbody>
</table>

*1 US $ = ₹65.73 as on March 31, 2017

## 2. DIVIDEND

**Interim and Final Dividend:**

Your company paid interim dividend of ₹ 2.61 per equity share in February 2017 and the Board of your Company have recommended a final dividend of ₹ 2.17 per equity share for the year 2016-17. With this, the total dividend for the year is ₹ 4.78 per equity share of ₹ 10/- each. In the year 2015-16, the total dividend paid was ₹ 3.35 per equity share of ₹ 10/- each.

The dividend payout is 42% and the total dividend payout including dividend tax is 50.54% of profit after tax.

The final dividend shall be paid after your approval at the Annual General Meeting.

The dividend has been recommended in accordance with your Company’s Dividend Distribution Policy which is available at the website link http://ntpc.co.in/en/investors/policy.

**41st Annual Report 2016-17**

**Directors’ Report**
3. OPERATIONAL PERFORMANCE

During the year, the power stations of your Company generated 250.31 BU (376.77 BU including JVs & Subsidiaries) of electricity (including solar and hydro power) which was 20.20% (22.40% including generation by JVs and Subsidiaries) of the total power generated in India registering an increase of 3.44% (5.07% including JVs & Subsidiaries) over the previous years generation of 241.98 BU.

Generation contributed by Koldam hydro station and NTPC solar power stations were 3.23 BU and 0.528 BU respectively.

The total generation contributed by coal stations is 237.96 BU during the year against generation of 230.64 BU last year registering a growth of 3.18%. Generation from coal based units could have been still higher but due to less generation schedule, there was opportunity loss of 41.95 BU.

The coal based stations operated at average Plant Load Factor (PLF) of 78.59% (All India PLF 59.88%) and average Availability Factor of 88.81% on a bar during the year.

For 2nd year in succession, 3 NTPC Stations were ranked as the Top 3 stations in the country and 11 NTPC Stations were in top 25 stations in the country in terms of PLF. 6 coal based stations out of 18 commercial Stations achieved more than 85% PLF.

The gas stations having a capacity of 4,017 MW achieved annual generation of 8.59 BU at a PLF of 24.42% as against 8.87 BU last year, mainly due to less generation schedule which accounted for an opportunity loss of 24.48 BU.

4. COMMERCIAL PERFORMANCE

4.1 Billing and Realisation:

Your Company has realized 100% of its current bills raised for energy supplied in 2016-17, thus achieving this feat for the 14th consecutive year.

Most of the customers were making their payments within 60 days of billing and had availed rebates as per Company's Rebate Scheme. Beneficiaries have established and are maintaining Letter of Credit (LCs) at 105% of the average monthly billing.

The Company has in place a robust payment security mechanism in the form of Letter of Credit (LCs) backed by the Tri-Partite Agreement (TPA). Apart from the LCs, payment of NTPC is secured by the TPAs signed amongst the State Governments, Govt. of India and Reserve Bank of India (RBI). As per the TPA, any default in payment by the Distribution Companies of a state can be recovered directly from the account of the respective State Governments with RBI.

4.2 Rebate Scheme for realization of dues:

In order to encourage early and full realization of dues, your Company has issued 'Rebate Scheme' for the year 2017-18. In the Scheme for 2017-18, 2% rebate shall be allowed for amounts credited to the account of Company for any advance payment and payments made till 8th day of the billing month. From 9th day of the billing month till 30th day of the month next to billing month, rebate on amounts credited to the account of the Company shall gradually reduce from 1.95% to 0% on 31st of the month next to the billing month. An additional rebate of 0.1% of the monthly billing would be allowed in all months where a customer maintains monthly LCs.

4.3 Commercial Capacity:

The following units including that of subsidiary companies were declared commercial during the year 2016-17, adding 9,190 MW to commercial capacity of your Company:

<table>
<thead>
<tr>
<th>Project/ Unit</th>
<th>Capacity (MW)</th>
<th>COD*</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTPC Units- Coal Based (I)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bongaigaon, Unit#1</td>
<td>250</td>
<td>01.04.2016</td>
</tr>
<tr>
<td>Mouda, Stage-II, Unit#1</td>
<td>660</td>
<td>01.02.2017</td>
</tr>
<tr>
<td>Total (I)</td>
<td>910</td>
<td></td>
</tr>
<tr>
<td>NTPC Units – Solar (II)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ananthapur Solar</td>
<td>200</td>
<td>09.05.2016</td>
</tr>
<tr>
<td>Ananthapur Solar</td>
<td>50</td>
<td>10.08.2016</td>
</tr>
<tr>
<td>Bhadla Solar Project</td>
<td>260</td>
<td>25.03.2017</td>
</tr>
<tr>
<td>Total (II)</td>
<td>510</td>
<td></td>
</tr>
<tr>
<td>Subsidiaries – Coal Based (III)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patratu Power Station, Unit#1(PVUNL)**</td>
<td>325</td>
<td>01.04.2016</td>
</tr>
<tr>
<td>Nabinagar Thermal Power Project, Unit#1 (BRBCL)</td>
<td>250</td>
<td>15.01.2017</td>
</tr>
</tbody>
</table>

The original TPAs signed during 2000-01 were valid up to 31.10.2016. As per the decision of the Union Cabinet and as agreed by the various States and RBI, these TPAs have been extended for a further period of 10 to 15 years. As of now 26 States/ UTs have signed the TPA documents. The signing process is in progress in the balance states.

41st Annual Report 2016-17
4.4 Tariff Related Matters:

In the year 2016-17, your Company had been able to reduce the Energy Charge Rate significantly through various measures such as reduced consumption of imported coal, rationalization of coal transportation across its various stations.

Hearings for determination of tariff for the 2014-19 period for various stations were completed and tariff orders were issued for most of the stations.

4.5 Strengthening Customer Relationship:

Your Company’s Core Values - ICOMIT contains ‘Customer Focus’ as one of the key elements. In line with this, your Company has taken up several initiatives targeted towards the external Customers. Customer Relationship Management (CRM) and Customer Satisfaction Index (CSI) are some of the most important parts of these initiatives.

As part of the CRM, your Company has been implementing several structured activities with the objective of sharing its experiences and best practices with the customers, capturing their feedbacks and expectations and addressing their issues. Some of these activities included providing various support services to the beneficiaries, which involves identifying potential areas of cooperation and sharing of each others’ best practices. In the financial year 2016-17, a total of 61 such programmes have been conducted for the customers on the basis of requirement expressed by them.

Your Company offers training programs to the representatives of beneficiary companies at Power Management Institute (PMI), the apex training institute of Company on free of cost basis. In 2016-17, 134 participants from various customer organizations attended training in 71 programs.

Your Company has also put in place Customer Satisfaction Index (CSI) survey scheme, to gather customer’s feedbacks through a survey and respond to their requirements. This CSI survey was conducted in 2016-17.

4.6 UDAY Scheme:

As part of the UDAY Scheme, your Company has been entrusted with the responsibility to help and guide the state generating companies to improve their operational efficiency and reduce the cost of generation. With this objective, workshops were conducted by your Company with representatives of Generating Companies of various states. Multi-disciplinary teams from your Company have also visited power stations at 12 states and suggested measures to improve efficiency in these plants.

4.7 Power Trading in Power Exchange:

In line with provisions of amended Tariff Policy, your Company has commenced trading of the Un-Requisitioned Surplus (URS) power in the Power Exchange through its trading arm NTPC Vidyut Vyapar Nigam Limited (wholly-owned subsidiary) from June 2016. As per the amended Tariff Policy,
gains from these transactions have to be shared in the ratio of 50:50 with the beneficiaries whose URS power is sold.

5. INSTALLED CAPACITY

During the year 2016-17, your Company added 3,845 MW to its installed capacity as per details given below:

<table>
<thead>
<tr>
<th>Project/ Unit installed</th>
<th>Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NTPC owned</strong></td>
<td></td>
</tr>
<tr>
<td>Coal Based Power Projects</td>
<td></td>
</tr>
<tr>
<td>Kudgi, Unit#1 and 2</td>
<td>1,600</td>
</tr>
<tr>
<td>Bongaigaon, Unit#2</td>
<td>250</td>
</tr>
<tr>
<td>Mouda, Unit#4</td>
<td>660</td>
</tr>
<tr>
<td>Unchahar, Unit#6</td>
<td>500</td>
</tr>
<tr>
<td><strong>Total NTPC owned</strong></td>
<td><strong>3,010</strong></td>
</tr>
<tr>
<td><strong>Solar Based Power Projects</strong></td>
<td></td>
</tr>
<tr>
<td>Bhadla</td>
<td>260</td>
</tr>
<tr>
<td>Ananthapur Solar</td>
<td>250</td>
</tr>
<tr>
<td><strong>Total NTPC Owned</strong></td>
<td><strong>510</strong></td>
</tr>
<tr>
<td><strong>Under Subsidiaries (Coal Based Power Projects)</strong></td>
<td></td>
</tr>
<tr>
<td>Patratu (subsidiary of NTPC in JV with JBVNL)</td>
<td>325</td>
</tr>
<tr>
<td><strong>Total by Subsidiaries</strong></td>
<td><strong>325</strong></td>
</tr>
<tr>
<td><strong>Total Addition during FY 2016-17</strong></td>
<td><strong>3,845</strong></td>
</tr>
</tbody>
</table>

With above capacity addition during 2016-17, capacity added in 12th Plan Period was 13,395 MW.

The total installed capacity of NTPC Group as on 31.03.2017 has become 50,498 MW (46,653 MW as on 31.03.2016) as tabulated below:

<table>
<thead>
<tr>
<th>Owned by NTPC</th>
<th>MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal based projects</td>
<td>38,095</td>
</tr>
<tr>
<td>Gas based projects</td>
<td>4,017</td>
</tr>
<tr>
<td>Renewable Energy Projects</td>
<td>620</td>
</tr>
<tr>
<td>Hydro Projects</td>
<td>800</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td><strong>43,532</strong></td>
</tr>
<tr>
<td>Joint Ventures &amp; Subsidiaries</td>
<td></td>
</tr>
<tr>
<td>Coal based projects</td>
<td>4,999</td>
</tr>
<tr>
<td>Gas based projects</td>
<td>1,967</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td><strong>6,966</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50,498</strong></td>
</tr>
</tbody>
</table>

With the commissioning of 660 MW of Solapur Thermal, 245 MW of Mandsaur Solar, 18 MW of Rojmal Wind and 250 MW of BRBCL (subsidiary of your Company) after 31.03.2017, installed capacity of your Company has become 51,671 MW as on 31.07.2017.

6. CORPORATE PLAN 2032

Due to changes in the business environment, regulatory and environment norms and emergence of renewable energy combined with technological breakthroughs, your Company has reviewed and has prepared its Long Term Corporate Plan to set the goals & targets for the period up to 2032. Through this Corporate Plan, the Company has adopted the vision to be “the world’s leading power company, energizing India’s growth.”

Commensurate with India’s growth aspirations, your company has embarked upon an ambitious plan to attain a total installed capacity of 130 GW and annual generation of more than 600 BU by 2032. The capacity will have a diversified fuel mix comprising 65.4% coal, 4.6% gas, 1.5% nuclear and 28.5% Renewable Energy Sources (RES) including hydro. Therefore, by 2032, non-fossil fuel based generation capacity shall make up nearly 30% of NTPC’s portfolio.

Besides pursuing its strategic targets, your company is also likely to replace its old & inefficient units with technologically advanced, efficient and environmentally compliant units by 2032, in a phased manner.

Your company has been allotted 10 coal blocks with a peak production capacity of more than 100 MTPA. With these coal blocks, the company envisages being one of the largest captive coal mining companies in the Country fulfilling about one third of its own coal requirement by 2030.

Your company would continue pursuing the power trading business in India as well as with the neighboring countries increasing its market share in the region through its wholly-owned subsidiary ‘NTPC Vidyut Vyapar Nigam Ltd’.

Going forward, your company envisages enhancing its current presence in the ancillary and consultancy services. It is also planning to make a foray into E-mobility and battery storage, supported by research & development and collaboration with OEMs, research institutes etc.

7. CAPACITY ADDITION PROGRAMME

7.1 Projects under Implementation

In addition to furthering capacity addition through Coal based power projects, your Company has been pursuing enhancement of its
power generation portfolio through Hydro and Renewable Energy projects.

Your Company’s various projects having aggregate capacity of 19,656 MW (including 4,090 MW being undertaken by Joint Venture and subsidiary companies) are under implementation at 22 locations across length and breadth of the country as on 31.07.2017. This includes 18,800 MW through Coal based projects, 45 MW through Renewable Energy projects including Small Hydro project of 8 MW and 811 MW through Hydro capacity. Apart from these projects, your company is also implementing 1,320 MW coal based power projects in joint venture with BPDB at Bangladesh. The details of such projects are as under:

<table>
<thead>
<tr>
<th>Ongoing Projects as on 31.07.2017</th>
<th>Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. NTPC owned:</td>
<td></td>
</tr>
<tr>
<td>A. Coal Based Projects</td>
<td></td>
</tr>
<tr>
<td>1. Bongaigaon, Assam</td>
<td>250</td>
</tr>
<tr>
<td>2. Barh-I, Bihar</td>
<td>1,980</td>
</tr>
<tr>
<td>3. Lara-I, Chattisgarh</td>
<td>1,600</td>
</tr>
<tr>
<td>4. North Karanpura, Jharkhand</td>
<td>1,980</td>
</tr>
<tr>
<td>5. Kudgi-I, Karnataka</td>
<td>800</td>
</tr>
<tr>
<td>6. Gadawara-I, Madhya Pradesh</td>
<td>1,600</td>
</tr>
<tr>
<td>7. Solapur, Maharashta</td>
<td>660</td>
</tr>
<tr>
<td>8. Darlipalli-I, Odisha</td>
<td>1,600</td>
</tr>
<tr>
<td>9. Tanda-II, Uttar Pradesh</td>
<td>1,320</td>
</tr>
<tr>
<td>10. Khargone, Madhya Pradesh</td>
<td>1,320</td>
</tr>
<tr>
<td>11. Telangana Phase-I, Telangana</td>
<td>1,600</td>
</tr>
<tr>
<td>Sub Total (A)</td>
<td>14,710</td>
</tr>
<tr>
<td>B. Hydro Electric Power Projects (HEPP)</td>
<td></td>
</tr>
<tr>
<td>12. Tapovan, Uttarakhand</td>
<td>Vishnugad,</td>
</tr>
<tr>
<td></td>
<td>520</td>
</tr>
<tr>
<td>13. Lata Tapovan, Uttarakhand@</td>
<td>171</td>
</tr>
<tr>
<td>14. Ramnarm Hydro, West Bengal</td>
<td>120</td>
</tr>
<tr>
<td>Sub Total (B)</td>
<td>811</td>
</tr>
<tr>
<td>C. Renewable Projects (Solar/Small Hydro)</td>
<td></td>
</tr>
<tr>
<td>15. Singrauli Small Hydro</td>
<td>8</td>
</tr>
<tr>
<td>16. Mandasaur SPV, Madhya Pradesh</td>
<td>5</td>
</tr>
<tr>
<td>17. Rojmal Wind</td>
<td>32</td>
</tr>
<tr>
<td>Sub Total (C)</td>
<td>45</td>
</tr>
<tr>
<td>Total I (A)+(B)+(C)</td>
<td>15,566</td>
</tr>
<tr>
<td>II Projects under JVs &amp; Subsidiaries</td>
<td></td>
</tr>
<tr>
<td>18. Nabinagar-JV with Railways (BRBCL), Bihar</td>
<td>500</td>
</tr>
<tr>
<td>19. Nabinagar, JV with BSPGCL (NPGCL), Bihar</td>
<td>1,980</td>
</tr>
<tr>
<td>20. Meja, JV with UPRVUNL (MUNPL), Uttar Pradesh</td>
<td>1,320</td>
</tr>
<tr>
<td>21. Rourkela, JV with SAIL (NSPCL), Odisha</td>
<td>250</td>
</tr>
<tr>
<td>22. Durgapur, JV with SAIL (NSPCL), West Bengal</td>
<td>40</td>
</tr>
<tr>
<td>23. Khulna, JV with BPDB (BIFPCL), Bangladesh</td>
<td>1,320</td>
</tr>
<tr>
<td>Total II</td>
<td>5,410</td>
</tr>
<tr>
<td>III Total On-Going Projects as on 31.07.2017 (I)+(II)</td>
<td>20,976</td>
</tr>
</tbody>
</table>

@Work of Lata Tapovan HEPP stopped since 07.05.2014 as per orders of the Hon’ble Supreme Court.

7.2 New Projects

Your Company awarded 1st Wind power project at Rojmal (50 MW) during the Financial Year 2016-17. The tender for Flue Gas Desulphurisation (FGD) for Telangana Project is under bidding stage.

As on 14.07.2017, your Company has projects for 3,720 MW Thermal capacity (Patratu 2,400 MW & Talcher-I 1,320 MW) and 1,275.5 MW Renewable capacity (Pavaṣṭa, Karnataka 1,000 MW Solar PV; Andaman 25 MW Solar PV with Battery backup; Kudli Roof Top Solar PV of 1.5 MW & 250 MW Wind Project) under bidding.

7.3 New Technology & Initiatives

Your company has laid major stress on efficient utilization of resources and use of technological advancements for improving energy efficiency.

With emphasis on efficiency of electricity generation, your Company has adopted ultra super critical technology by improving the steam parameters for North Karanpura (3X660 MW) to 260 kg/ cm², 593°C/ 593°C. For Khargone (2X660 MW) and Telangana (2X800 MW) steam parameter are 270 kg/ 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 units using similar coal.
For the first time in your Company, Air Cooled Condenser System has been adopted at North Karanpura STPP, which has led to a significant reduction in make-up water requirement for the project.

Your Company has gone ahead for utility slab grid interactive Battery Energy Storage System for solar plant output smoothing (intermittencies due to closed effect) and energy time shift application at Port Blair, Andaman & Nicobar (A&N). This is your Company’s contribution towards greening the Islands. Your Company is taking up solar projects of 25 MW capacity at Port Blair, A&N Islands. This is first large scale commercial project for critical application for sustainability of Solar project at A&N.

Pilot project for Biomass co-firing

Your company is planning to install biomass co-firing facility as a pilot project at its Dadri station to partially substitute the coal by carbon neutral crop residues obtained from agricultural fields in form of pellets/briquettes. This is intended to cut down carbon emissions and also to discourage crop residue burning by farmers after harvesting by adding economic value to the crop residue and providing extra income to farmers and employment in rural sector.

Hybrid solar thermal plant

Your Company has awarded a project for Solar Thermal Integration with the existing coal based unit at Dadri during the financial year 2016-17. The project is under construction and is expected to be commissioned this year. The expected peak electrical output contribution from the plant would be about 3.6 MW.

This shall result in coal savings of around 3,825 Tonnes/year and in CO₂ emissions reduction of around 4,060 Tonnes/year.

7.3.1 Development of Advanced Ultra Super Critical technology

Your 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/sq cm, 710°C/750°C C. Phase-I (R&D phase-I) of the project is already approved by Government of India.

Environment Protection

Your Company, as pioneer in Environment monitoring, has already installed Ambient Air Quality Monitoring Systems (AAQMS) employing NOx, SOx, CO, SPM & RSPM analysers in 20 operating stations in 2009-10 and data is being made available to CPCB. Similarly, Continuous Emission Monitoring System (CEMS) employing NOx, SOx, CO & CO₂ analysers at stack for flue gas have been installed recently in various operating stations. Your company has recently introduced analysers for Mercury monitoring for both AAQMS and CEMS.

Your Company is working to install additional air and water pollution control systems at various projects to comply with the applicable new environmental norms notified by MOEF&CC vide gazette notification dated 07.12.2015.

Your Company has already tendered (Under Lot-1A) on 30.06.2017 for installation of Flue Gas Desulphurisation System Package for 11 Projects of total 17,440 MW capacity in order to meet SO₂ emission limits as per New Environmental Norms.

Your Company has also tendered on 30.06.2017 for installation of Waste to Energy (WTE) System Package for 400 tpd capacity to be located at Badarpur, New Delhi.

7.4 Project Management

Your Company has established state-of-the-art IT enabled Project Monitoring Centre (PMC) for facilitating fast track project implementation. PMC has advanced features like Web-based Milestone Monitoring System (Webmiles), Project Review and Internal Monitoring System (PRIMS), etc. PMC facilitates monitoring of key project milestones and also acts as decision support system for the management.

PMC is an integrated enterprise-wide collaborative system to facilitate consolidation of project related issues and their resolution. Features like SMS based information delivery; real time video capture, storage and retrieval facility and video conference facility are extensively utilized for project tracking, issues resolutions and management interventions. PMC has helped in providing effective coordination between the agencies and has provided enhanced/efficient monitoring of the projects leading to better and faster project implementation.

7.5 Capacity addition through Subsidiaries and Joint Ventures (JVs)

Besides adding capacities on its own, your Company develops power projects through its subsidiaries and joint ventures, both in India and abroad.
The information of Indian Subsidiaries and JV Companies along with details of partners of joint ventures engaged in power generation is given below:

<table>
<thead>
<tr>
<th>Name of Company</th>
<th>JV Partner(s)</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBUNL (Kanti Bijlee Utpadan Nigam Ltd.)</td>
<td>Bihar State Power Generation Company Limited (erstwhile BSEB)</td>
<td>A subsidiary Company in which your company holds 65% shares in joint venture with BSPGCL (erstwhile BSEB), took over Muzaffarpur Thermal Power Station having 2 units of 110 MW each from BSEB. Both the units of Stage-I have been declared on commercial operation. Total generation in FY 2016-17 was 769.88 MU at 38.63% PLF. The Company has also taken up expansion of the project by 2X195 MW units. Unit#3 of Stage-II was declared commercial on 18.03.2017 and Unit#4 of Stage-II was declared commercial on 01.07.2017.</td>
</tr>
<tr>
<td>BRBCL (Bhartiya Rail Bijlee Company Ltd.)</td>
<td>Ministry of Railways</td>
<td>A subsidiary of your company in joint venture with Ministry of Railways with equity contribution in the ratio of 74:26 respectively for setting up power project of 1000 MW (4X250 MW) capacity at Nabinagar in Bihar. Unit#1 of 250 MW was declared commercial on 15.01.2017 and Unit#2 was commissioned on 03.04.2017. Construction activities in other units are in progress.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of Company</th>
<th>JV Partner(s)</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSPCL (NTPC-SAIL Power Co. Ltd.)</td>
<td>Steel Authority of India Ltd. (SAIL)</td>
<td>A 50:50 Joint Venture Company between your company and SAIL, owns and operates captive power plants for SAIL at Durgapur (120 MW), Rourkela (120 MW) &amp; Bhilai (74 MW) and Bhilai PP-III (2X250 MW), which is supplying power to SAIL, Chhattisgarh, DNH and D&amp;D. Its present installed capacity is 814 MW. NSPCL generated 5,981.91 MU at 83.89% PLF in FY 2016-17 with PAF of 96.68%. Trading of URS power started from 03.08.16 at IEX. Total 130.34 MU has been traded during the year. NSPCL has paid final dividend of ₹10 Cr for FY 2015-16 and interim dividend of ₹60 Cr for FY 2016-17 to NTPC. Under Implementation - New Coal based Capacity at Rourkela PP-II Expansion (1 x 250 MW) &amp; Durgapur PP-III (2 x 20 MW) is under construction. Solar Power Plants of 200 MW capacity at various plant locations of SAIL is also being pursued. Solar Power Plant of 50 MW capacity at Salem is being implemented in the first phase.</td>
</tr>
</tbody>
</table>

41st Annual Report 2016-17

Directors’ Report
<table>
<thead>
<tr>
<th>Name of Company</th>
<th>JV Partner(s)</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTECL (NTPC Tamil Nadu Energy Co. Ltd.)</td>
<td>Tamilnadu Generation and Distribution Corporation Limited (TANGEDCO) (erstwhile TNEB)</td>
<td>A 50:50 JVC has commissioned 3x500 MW coal based power project at Vallur, Tamilnadu. All the units have been declared on commercial operation. Total generation of NTECL during FY 2016-17 was 9,211 MUs at 70.13% PLF. NTECL had made a profit of ₹ 197.94 crore for FY 2016-17.</td>
</tr>
<tr>
<td>APCPL (Aravalli Power Company Pvt. Ltd.)</td>
<td>Indraprastha Power Generation Company Ltd. (IPGCL) and Haryana Power Generation Corporation Ltd. (HPGCL)</td>
<td>This JVC is operating 3X500 MW coal based Indira Gandhi Super Thermal Power Project. NTPC, IPGCL and HPGCL have contributed equity in the ratio of 50:25:25. Total generation of APCPL during FY 2016-17 was 5,474 MU. APCPL has paid interim dividend of ₹ 66.60 crore to NTPC for FY 2016-17.</td>
</tr>
<tr>
<td>MUNPL (Meja Urja Nigam Pvt. Ltd.)</td>
<td>Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd. (UPRVUNL)</td>
<td>A 50:50 JVC is implementing 1,320 MW (2X660 MW) coal based power project in the state of Uttar Pradesh. Construction activities are in progress.</td>
</tr>
<tr>
<td>NPGCL (Nabinagar Power Generating Company Pvt. Ltd.)</td>
<td>Bihar State Power Generation Company Limited (erstwhile BSEB)</td>
<td>A 50:50 JVC is setting up a 3x660 MW Coal based plant at Nabinagar. Construction activities are in progress.</td>
</tr>
<tr>
<td>RGPPL (Ratnagiri Gas and Power Pvt. Ltd.)</td>
<td>GAIL, ICICI Bank, SBI, IDBI, Canara Bank and MSEB Holding Co. Ltd.</td>
<td>Your company has a stake of 25.51%. Total 15 LNG Cargos were unloaded during FY 2016-17. PPAs have been signed by RGPPL with Indian Railways for supply of ~500 MW for 5 years w.e.f. 01.04.2017 and Gas Supply Agreements were signed with GAIL for supply of 1.75 MMSCMD of RLNG w.e.f. 01.04.2017 for 5 years. For the year 2016-17, gross generation was 4,560 MUs. Pursuant to approval by RGPPL Board for demerger of power &amp; LNG Blocks into separate Companies, a scheme of demerger of its LNG Block into Konkan LNG Private Limited, in the Delhi High Court on 29.07.2016 for its approval. Last hearing was held on 29.06.2017. Final order from NCLT (before commencement ofIBC Code, 2016, High Court was empowered to hear demerger petitions) is yet to come.</td>
</tr>
<tr>
<td>ASHVINI (Anushakti Nigam Ltd.)</td>
<td>Nuclear Power Corporation of India Ltd. (NPCIL)</td>
<td>Your company is having a stake of 49%. The company was formed for setting up nuclear power project(s). Department of Atomic Energy has permitted joint venture of two CPSEs to set up Nuclear Power Project, due to change in definition of Government Company under Atomic Energy (Amendment) Act, 2015. Currently, no activities are being taken up by the Company.</td>
</tr>
<tr>
<td>Name of Company</td>
<td>JV Partner(s)</td>
<td>Details</td>
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</tr>
<tr>
<td>PVUNL (Patratu Vidyut Utpadan Nigam Limited)</td>
<td>Jharkhand Bijli Vitrak Nigam Limited (JBVNL)</td>
<td>PVUNL has been incorporated on 15.10.2015 as a subsidiary of your company with 74% stake in the Company and 26% of stake held by JBVNL to acquire, establish, operate, maintain, revive, refurbish, renovate and modernize the performing existing units of 325 MW and tie-lines, sub-stations and main power transmission lines connected therewith and setting up of the new units. Government of Jharkhand had issued the Notification dated 01.04.2016 for transfer of assets of Patratu Thermal Power Station to Patratu Vidyut Utpadan Nigam Limited. Keeping in view the high cost of generation, age of the units and difficulty in complying with the new environmental norms, operations of all existing units has been stopped w.e.f. 24.01.2017. Steps are being taken for decommissioning of these units. For expansion units (Phase-I 3X800 MW), application for environment clearance was submitted to MOEF on 09.06.2017. Further, Deed of Adherence was signed with Banhardi Coal Mine and bridge linkage was applied to Ministry of Coal.</td>
</tr>
<tr>
<td>Pan-Asian (Pan-Asian Renewables Private Limited)</td>
<td>Asian Development Bank and Kyuden International Cooperation</td>
<td>Pan-Asian was incorporated to carry on the business of power generation through non-conventional/renewable energy sources. Pan-Asian and Promoters made reasonable endeavours to identify and induct 4th investor. However, the Board of Pan-Asian in its meeting, noted that since incorporation several efforts were made, but due to reasons beyond the control of the Board of Pan-Asian, the New Investor could not be inducted and business operations of the Company could not be started. It was then decided to voluntary wind-up the Company. Hon'ble High Court of Delhi, based on satisfaction accorded by the Official Liquidator, through its Order pronounced that the Pan-Asian is hereby wound up and dissolved with effect from the date of filing of the petition. An MOU has been signed with NALCO on 16.12.2016 for revival of Gajmara Power Project and supply of power to NALCO for captive use. A joint technical task force has been constituted for finalization of detailed modalities. Hydro Power Your Company now has its footprints in renewable energy by developing hydro projects as detailed below: A. Koldam HEPP (4x200 MW) is on the river Satluj at Barmana, District Bilaspur (Himachal Pradesh). All the four units of 200 MW each were declared commercially operational on 18.07.2015. Since then, the project is running successfully. The generation for the financial year 2016-17 had been 3,295 MU.</td>
</tr>
</tbody>
</table>
B. Tapovan Vishnugad HEPP (4x130 MW) is on River Dhauli Ganga, District Chamoli (Uttarakhand). Project is under construction with approximately 80% work completed.

C. Lata Tapovan HEPP (3x57 MW) is just upstream of Tapovan-Vishnugad HEPP, in District Chamoli (Uttarakhand). 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 submitted the same in court on 05.11.2015, where Lata Tapovan had been recommended for implementation with compliance of certain additional conditions. Your Company submitted in Court on 19.11.2015 that the conditions recommended by expert body shall be strictly compiled. On the hearing held on 26.04.2016, Additional Solicitor General of India represented MOEF & CC and informed the Court that Lata – Tapovan Project must be implemented. The matter is still pending in Hon’ble Supreme Court for want of affidavit from Ministry of Water Resources.

For National Board of Wild Life (NBWL) Clearance, for Tapovan- Vishnugad and Lata Tapovan HEPPs, the proposal regarding redefining of Eco Sensitive Zone (ESZ) was discussed in Uttarakhand State Cabinet Meeting. Formal proposal redefining the limits of ESZ of Nanda Devi National Park has been forwarded by Govt. of Uttarakhand to the standing committee of NBWL on 26.07.2016. Approval of GOI is awaited.

D. Rammam-III HEPP (3x40MW) is situated on river Rammam in Teesta Basin, Darjeeling (West Bengal). Construction work is in progress.

7.7 Capacity Addition through Renewable Energy Sources

Your Company 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.

7.7.1 Under Green Energy Commitment:

Your Company has committed to develop 10 GW of Renewable Energy Projects under Green Energy Commitment to Govt. of India. Your Company has already commissioned 883 MW of RE projects as on 31st July 2017 and 37 MW is under execution. Further, NITs have been issued for 1,025 MW of Solar PV projects to be set up in the states of A&N and Karnataka and 250 MW Wind power project in the states of Gujarat, Karnataka, Andhra Pradesh & Madhya Pradesh.

7.7.2 National Solar Mission:

Your Company has been entrusted to develop 15 GW Solar PV under National Solar Mission (NSM) Phase-II in three tranches between 2014-15 to 2018-19, where your Company will be the facilitator/trader between Discoms and developers. Your Company will purchase power from the developers and sell it to the Discoms. Under Tranche-I of 3,000 MW of Solar PV capacity, PPA have been signed for 2,750 MW solar PV projects till 30th June 2017 and for balance 250 MW, Reverse Auction has been completed. Out of this 3,000 MW, 1,380 MW Solar PV capacity has been commissioned till 30th June 2017. The guidelines for the balance 12 GW is awaited from MNRE.

8. STRATEGIC DIVERSIFICATION - INCREASING SELF-RELIANCE

8.1 In order to strengthen its competitive advantage in power generation business, your Company 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.

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

8.2 The details of subsidiary companies engaged in business other than in power generation are as under:

8.2.1 NTPC Electric Supply Company Limited (NESCL), a wholly-owned subsidiary, transferred and vested all its operations, with effect from April 1, 2015, to your company.

NESCL was incorporated for the distribution business and later started deposit and consultancy works. The transfer and vesting of existing operations would enable a focused business approach in the area of distribution, the objective for which NESCL was incorporated. Although currently NESCL does not have any business operations in retail distribution, the same will be taken-up at an appropriate time when the opportunity becomes visible.

8.2.2 NTPC Vidyut Vyapar Nigam Limited (NVVN), a wholly-owned subsidiary, is engaged in the business of Power trading. NVVN has a trading License under Category I (highest category).

In the Financial Year 2016-17, NVVN achieved highest ever power trading volume of 15,861 million units (MUs) apart from trading of Renewable Energy Certificates equivalent to 68 MUs.

NVVN has paid dividend of ₹ 30 Crore as final dividend for FY 2016-17.
The details of other joint venture companies which are taking up activities in other business related areas are given below:

<table>
<thead>
<tr>
<th>Name of Company</th>
<th>JV Partner</th>
<th>Activities Undertaken</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPL (Utility Powertech Ltd.)</td>
<td>Reliance Infrastructure Limited</td>
<td>Takes up assignments of construction, erection and supervision of business in power sector and other sectors like O&amp;M services, Residual Life Assessment Studies, non-conventional projects etc. UPL has paid dividend of ₹ 2.5 Cr as final dividend to NTPC for FY 2015-16.</td>
</tr>
<tr>
<td>NGPSL (NTPC GE Power Services Private Limited, earlier NTPC Alstom Power Services Private Limited)</td>
<td>GE Power Systems GmbH</td>
<td>To provide R&amp;M services for coal based power plants in India. To renovate, modernise, refurbish, rehabilitate, upgrade, reverse engineering and component damage assessment. Also for undertaking Residual life assessment, reengineering in India and on a project by project basis elsewhere in abroad, utilising state-of-the-art technology. General Electric Company (GEC) on 2nd November 2015, has acquired the thermal power, renewable power and grid business of ALSTOM, which also includes indirectly acquiring the 50% shareholding of Alstom in NTPC/Alstom Power Services Pvt. Limited (NASL). Accordingly, Supplementary Promoters’ Agreement was signed between NTPC and GE Power Systems GmbH for inducting GE as a JV Partner in place of ALSTOM. Also, the name of the Company was changed to NTPC GE Power Services Private Limited. R&amp;M including RLA work orders are under execution. NGPSL gave ₹ 0.60 Cr as final dividend to NTPC for FY 15-16. The dividend was received in FY 16-17.</td>
</tr>
<tr>
<td>EESL (Energy Efficiency Services Ltd.)</td>
<td>PFC, PGCIL and REC</td>
<td>The Company was formed for implementation of Energy Efficiency projects and to promote energy conservation and climate change. EESL is working on Energy Audit of Buildings, Perform Achieve Trade (PAT) scheme work and standard &amp; leveling work of BEE, Consultancy work, implementing Bachat Lamp Yojana and Agricultural &amp; Municipal Pump replacement for various State Govts. EESL gave ₹ 3.39 Cr as final dividend for FY 15-16. The dividend was received in FY 16-17.</td>
</tr>
<tr>
<td>NHPTL (National High Power Test Laboratory Pvt. Ltd.)</td>
<td>NHPC, PGCIL, DVC and CPR</td>
<td>To establish a research and test facility for the power sector such as an “Online High Power Test Laboratory” for short circuit testing facility and other facilities as may be required for the same in the country. Online High Power Test Laboratory has been set up at Bina, M.P. Company has declared Commercial operations of the laboratory w.e.f 01.07.17.</td>
</tr>
<tr>
<td>Name of Company</td>
<td>JV Partner</td>
<td>Activities Undertaken</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>NPEX (National Power Exchange Ltd.)</td>
<td>NHPC, PFC, ICS, BSE, IFCI, Meenakshi, DPSC</td>
<td>The Company was formed to facilitate, promote, assist, regulate and manage nationwide trading of all forms of electrical energy and also to settle trades in a transparent fair and open manner. The purpose for which NPEX was incorporated could not be achieved and in order to protect further deterioration in equity investment, it was felt that there was no alternative available but to put NPEX into voluntary winding up, realize assets thereof and distribute proceeds to the shareholders. Hon’ble High Court of Delhi based on satisfaction accorded by the Official Liquidator, pronounced its Order dated May 26, 2017, that NPEX is wound up and shall deemed to be dissolved with effect from the date of the filing of the present petition i.e. March 31, 2017.</td>
</tr>
<tr>
<td>NBPL (NTPC-BHEL Power Projects Pvt. Limited)</td>
<td>Bharat Heavy Electricals Limited</td>
<td>The Company was incorporated for taking up activities of engineering, procurement and construction (EPC) of power plants and manufacturing of equipments. NTPC has accorded in-principle approval for withdrawal of NTPC from NBPL on 28.04.2016. EPC contract awarded to NBPL for Unchahar-Stage IV (500MW) was commissioned on 31.03.2017. STG Trial Run of Monarchak 1X100 MW Combined Cycle Power Plant was completed on 4th April, 2017 and CoD had been declared.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of Company</th>
<th>JV Partner</th>
<th>Activities Undertaken</th>
</tr>
</thead>
<tbody>
<tr>
<td>BF-NTPC (BF-NTPC Energy Systems Limited)</td>
<td>Bharat Forge Limited</td>
<td>This Company was incorporated to manufacture castings, forgings, fittings and high pressure piping required for power projects and other industries. However, since the project could not take off, it has been decided to wind up BF-NTPC. The proposal is awaiting clearance from Ministry of Power.</td>
</tr>
<tr>
<td>TELK (Transformers and Electricals Kerala Limited)</td>
<td>Acquisition of 44.6% stake in TELK from Government of Kerala on June 19, 2009</td>
<td>The Company deals in manufacturing and repair of Power Transformers. The Company had a turnover of ₹ 167.47 crore in FY 2016-17. NTPC has accorded in-principle approval for withdrawal of NTPC from TELK on 28.04.2016.</td>
</tr>
<tr>
<td>ICVL (International Coal Ventures Private Limited)</td>
<td>CIL, SAIL, RINL, NMDC</td>
<td>ICVL was formed for acquisition of stake in coal mines/ blocks/companies overseas for securing coking and thermal coal supplies. In view of lack of suitable commercially viable opportunities for thermal coal, your Company has decided to exit from ICVL. As the Company was formed by a directive from the Government of India, approval of the Government is awaited for exit.</td>
</tr>
<tr>
<td>NTPC-SCCL (NTPC-SCCL Global Ventures Private Limited)</td>
<td>The Singareni Collieries Company Limited</td>
<td>NTPC-SCCL was formed for acquisition/development of mines, beneficiation processing, O&amp;M of coal/lignite blocks and selling of coal/ lignite produced thereof. As the Company could not attain its objectives, it is under voluntary winding up.</td>
</tr>
</tbody>
</table>
### Name of Company | JV Partner | Activities Undertaken
---|---|---
HURL (Hindustan Urvarak & Rasayan Limited) | Coal India Limited, Indian Oil Corporation Limited, Fertilizer Corporation of India Limited (FCIL), Hindustan Fertilizer Corporation Limited (HFCL) | HURL was incorporated on 15.06.2016 to establish and operate new fertilizer and chemical complexes (urea-ammonia and associated chemical plants) at Gorakhpur & Sindi units of FCIL and Barauni unit of HFCL and to market its products, taking into consideration the assets of FCIL and HFCL at Gorakhpur, Sindi and Barauni. Pre project activities like topographic survey, geotechnical investigation and Water availability for Gorakhpur, Sindi and Barauni project are under progress. EIA Report was submitted for all the three projects. Tenders have been floated for EPC work of all 3 projects.

Your Company is looking forward to develop the charging infrastructure and run a few pilot projects to get a foothold in this area and also to accumulate data sufficient for assessing the viability of the future business. It is currently looking to set up electric vehicle charging infrastructure, reach an MOU with city administrations and seek strategic collaborations with other stakeholders in energy sector.

### 9. GLOBALISATION INITIATIVES

#### 9.1 Trincomalee Power Company Limited (TPCL), a 50:50 joint venture between your Company 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. As per the decision of the Board of TPCL, operation of the Company have been limited till September 2017. Govt. of Sri Lanka (GoSL) had issued letter of intent to Government of India for development of 500 MW LNG based JV power project.

#### 9.2 Bangladesh-India Friendship Power Company Private Limited, a 50:50 joint venture Company between your Company 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 has been awarded to BHEL. Financial closure has been achieved on 09.04.2017.

### 10. CONSULTANCY SERVICES

Consultancy Wing offers services “From Concept to Commissioning and beyond...” such as in Engineering, Operation & Maintenance Management, Project Management, Contracts & Procurement Management, Quality Management, Training & Development, Development of coal mines, Solar power projects etc. These services have been provided in India and abroad viz. Gulf countries, Bangladesh, Nepal, Sri Lanka and Bhutan. It is providing Services for more than 91,000 MW capacity to external clients besides 10,090 MW of NTPC JVs.

On international front, Consultancy Wing is providing O&M management services at Sridharganj Peaking Power Plant (2x120MW) in Bangladesh under a World Bank funded contract which has been progressing successfully for last 4 years. There has been an all round improvement in terms of plant parameters due to implementation of best practices and systems in power plant with involvement of NTPC experts.

On the domestic front, Consultancy Wing provided Owner’s Engineers Services for 2x600MW plant and is providing Pre-award services for 1x800MW power plant of Singareni Collieries Co. Ltd. It is also providing Owner’s Engineers and Mine Development Services for Patratu Vidyut Utpadan Nigam Limited. Also executing assignments of various clients such as UPRVUNL, NMDC, DPCC, THDC, HPGCL, OCPL and NTPC JVs towards FR/DPR Preparation, Procurement & Inspections and other advisory services.

Project Monitoring Services are being provided for 2x660 MW Shree Singaji TPP Khandwa, MPPGCL by deployment of executives at site resulting in works progressing ahead of schedule.

Consultancy Wing is providing Performance Improvement services to 4x950 MW units of Chhabra TPS, RVUNL and Technical support in Operation of 2x600 MW units at Shree Singaji TPS, Khandwa & HQ Jabalpur by deployment of executives at respective sites. Major O&M Technical Audit and Performance Guarantee test assignments of HPGCL, RVUNL, LPGCL, MAHAGENCO, PPL, NEEPCO and DVC were taken up by Consultancy Wing.
Highlights of FY 16-17:

- Consultancy Wing received orders of ₹ 468.43 crore, which is highest since inception.
- Consultancy Wing bagged 85 nos. of orders, which is highest since inception.
- 1310 MW capacity declared commercial for clients.
- Chhabra Power Station of RVUNL achieved turnaround performance and moved up by 64 positions to find a place at 24th in all India ranking.
- Boiler Hydro test of Unit # 1 (660MW) of Shree Singaji TPP was successfully completed 3 months ahead of schedule.
- More than 90% availability achieved at 2X600 MW Shree Singaji TPS, Khandwa MPPGCL after commissioning

Consultancy Wing is looking ahead for future business opportunities in areas like implementation of solar & renewable power projects, mine development & supporting other power utilities for meeting new environmental norms.

11. FINANCING OF NEW PROJECTS

The capacity addition programs shall be financed with a debt to equity ratio of 70:30, in case of thermal and hydro projects and that of 80:20 in case of solar projects. Your directors believe that internal accruals of the Company would be sufficient to finance the equity component for the new projects. Given its low geared capital structure and strong credit ratings, your Company is well positioned to raise the required borrowings.

Your Company is exploring domestic as well as international borrowing options including overseas development assistance provided by bilateral agencies to mobilize the debt required for the planned capacity expansion program.

The details of funding are discussed in the Management and Discussion Analysis Report which forms part of this Report.

12. FIXED DEPOSITS

Your Company has discontinued the acceptance of fresh deposits and renewals of deposits under Public Deposit Scheme with effect from 11.05.2013. As such, there were no deposits which were not in compliance with the requirements of Chapter-V of the Companies Act, 2013.

The details relating to deposits, as per the Companies Act, 2013 is as under:

<table>
<thead>
<tr>
<th>(a)</th>
<th>Accepted during the year</th>
<th>(b)</th>
<th>Remained unpaid or unclaimed as at the end of the year</th>
<th>(c)</th>
<th>Whether there has been any default in repayment of deposits or payment of Interest thereon during the year and if so, number of such cases and the total amount involved:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
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<td>(i) At the beginning of the year</td>
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<td>(ii) Maximum during the year</td>
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<td>(iii) At the end of the year</td>
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</tr>
</tbody>
</table>

* Pending for completion of legal formalities/ restraint orders/ non-receipt of claims.

13. FUEL SECURITY

13.1 During the year, the supply position of coal and gas is given as under:

13.1.1 Coal Supplies

Your Company had entered into long term Fuel Supply Agreement with Coal India Limited (CIL) & The Singareni Collieries Company Limited (SCCL) for total Annual Contracted Quantity (ACQ) of 149.93 MMT & 11.2 MMT respectively and Bridge linkage of 4.65 MMT for Barh-II. The Company has short term MOU with SCCL for supply of 5.5 MMT of coal for Ramagundam, Simhadri, Mouda, Solapur and Kudgi stations for supplies till March 2017 which was further extended upto 30th June 2017. Further, your Company has signed MOU with SCCL for supply of 8.0 MMT during 2017-18 to the above referred stations with the provision for additional quantity of 2.0 MMT. Your Company & CIL jointly agreed for rationalization of Source/ACQ of stations on 13.06.2016 by shifting of some coal from non-pitheads to pithead stations. Annual benefit on above rationalization is envisaged at around ₹ 862 Crore.

To leverage further potential of rationalization of coal linkages, your Company has signed a Supplementary Agreement with CIL and its subsidiaries for all owned/ JV/ Subsidiary stations on 12.04.2017 for implementation of Govt. policy on “Flexibility in utilization of domestic coal for reducing cost of power generation”. Under the Supplementary Agreement, your Company can allocate coal to any station of its own/ JV/ Subsidiary for optimising the Energy Charges.

Your Company was also allocated Bridge Linkages by Special SLC(LT) in its meeting held on 18.03.2016 for NTPC stations viz. i) Barethi (4x660 MW), ii) Barh –II (2x660 MW), iii) Darlipalli – I (2x800 MW), iv) Tanda-II (2x660 MW), v) Lara-I (2x800 MW), vi) Kudgi-I (3x800 MW) & vii) Bilhaur (2x660 MW).
MOUs for Barh, Lara and Darlipalli have already been signed.

13.1.2 Domestic Coal and Imported Coal

During 2016-17, your Company received 160.4 MMT of coal as against 161.8 MMT in 2015-16 marking a decrease of (-) 0.86%.

Total domestic coal supply during 2016-17 was 159.35 MMT as against 152.3 MMT during 2015-16. Out of 159.35 MMT of coal, 152.17 MMT was from Annual Contracted Quantity of coal. The total coal supply from CIL was 144.33 MMT and from SCCL was 15.02 MMT. 6.78 MMT of coal was procured through MOU during 2016-17.

During 2016-17, Company imported 1.09 MMT (including swap) of coal as against 9.7 MMT in 2015-16.

During the period under review, approx. 52.52% coal (domestic and international) was transported through merry-go-round of NTPC (MGR).

13.1.3 Sourcing of coal through E-auction

Your Company participated in special E-auction for Vindhyachal, Stage-V and Unchahar Stage-IV in the year 2016-17 and 284 rakes (Approx. 1.136 MMT) had been allotted.

Total coal received through E-auction was 0.29 MMT during 2016-17 as compared to 0.94 MMT during 2015-16.

13.1.4 Supply through Inland Waterways

During 2016-17, about 3.71 lac MT imported coal has been supplied through inland waterways mode to Farakka station under a Tripartite Agreement with IWAI and service provider.

13.1.5 Commencement of third party Sampling, Central Institute of Mining and Fuel Research (CIMFR)

In line with the decision made in the meeting held under the Chairmanship of Hon’ble Minister of State (I/C) for Power, Coal & NRE on 28.10.2015 for sampling and analysis of coal at loading end, Power Utilities and Coal companies had appointed a single third party agency, CIMFR. CIMFR has started sampling at the loading points of all stations and JV’s expect for NEC supplies to Farakka and Bongaigaon. CIMFR has also started sampling at unloading end of all stations except Badarpur, Tanda, Bongaigaon, and Vallur, NTECL (JV of NTPC), Kanti, BRBCL and Patratu (subsidiaries of NTPC).

This will help your Company in reducing the cost of generation as CIMFR can ensure that the grade billed by coal companies is actually supplied to stations of the Company.

13.2 Gas supplies

During 2016-17, your Company received total 5.17 MMSCMD of domestic gas as against 5.20 MMSCMD received during 2015-16. RLNG off-take was Nil during 2016-17 due to non-availability of generation schedule from the beneficiary Discos.

Your Company has Administered Price Mechanism (APM) gas agreements up to the year 2021 and Panna Mukta Tapti (PMT) gas agreements up to the year 2019 with GAIL. The agreement for Non-APM gas with GAIL is valid till 30th September 2017, which is getting extended from time to time.

For additional gas requirement over and above the supplies under long-term domestic gas/RLNG agreements, your Company has been making arrangements for tie-up and supply of Spot RLNG from domestic suppliers on ‘Reasonable Endeavour’ basis based on requirement and availability from time to time. There has been no generation loss on account of lack of availability of gas/RLNG during the year.

13.3 Development of Coal Mining projects

Your Company has been allocated eight coal blocks, namely, Pakri-Barwadih, Chatti-Bariatu & Chatti-Bariatu(South), Kerandari, Dulonga, Talaiapalli, Banai, Bhalumuda and Mandakini-B by Government of India. In addition, Government of India has also allocated Kudanali-Luburi coal block jointly to NTPC and the State of J&K, with NTPC’s share of coal reserves in this block being two-third. Process of formation of Joint Venture Company with the state of J&K for Kudanali-Luburi coal block is underway.

Banhardih coal block, allocated earlier to Jharkhand Ujra Utpadan Nigam Ltd., has been assigned to Patratu Vidyut Utpadan Nigam Ltd., a subsidiary of your Company in joint venture with JBVNL.

From these 10 coal blocks, with a total estimated geological reserves of about 7.3 Billion Metric Tonnes, your Company expects to produce about 107 Million Metric Tonnes of coal per annum.

Coal production commenced from Pakri-Barwadih coal block in December 2016 and a total of 2.27 lakh tonne of coal was extracted and 28 rakes were dispatched to Barh in FY 2016-17. Further, 3.98 lakh tonne of coal was extracted and 44 rakes were dispatched to Barh in Q1 2017-18. In this coal block, on community development / CSR activities, your Company has incurred an expenditure of ₹ 3.96 Crore in this FY 2016-17 (Cumulative expenditure of ₹ 92.99 Crore) which has helped in improving the socio-economic conditions of the locals.
Your Company has progressed well in other coal blocks, too. Mine Developer-cum-Operator (MDO) for Dulanga coal block has been appointed on 09.02.2017 and the same is in advanced stage for Talapalli and Chattis-Bariatu coal blocks. For Kerandari coal block, techno-commercial bids opened on 15.05.2017 and are under evaluation.

CIL NTPC Urja Private Limited was incorporated as 50:50 joint venture company between your Company and Coal India Limited mainly to undertake development of Brahmani and Chichro Patsimal coal mines in Jharkhand and subsequently their operation and maintenance. Ministry of Coal de-allocated these mines in June 2011. Further,Hon’ble Supreme Court in September 2014 had cancelled allocation of 204 coal blocks including these two blocks. So far, Brahmani and Chichro Patsimal coal blocks have not been considered for allocation/auction.

13.4 Exploration Activities
In Cambay exploration block (CB-ONN-2009/S) held by your Company as Operator with 100% participating interest, Minimum Work Programme (MWP) has been completed. No oil or gas of commercial value was observed in any of the wells. The block was relinquished to Government of India.

In the KG basin exploration block KG-OSN-2009/4 where ONGC is the Operator and your Company has 10% stake, the exploration activities are in progress. As the permitted area of the block for exploration was reduced because of non-grant of defence clearance, GOI reduced the minimum work programme to drilling of one well and conduct airborne Full Tensor Gravity Gradiometer (FTG) survey in conditionally partially cleared area. Drilling of one well was completed. FTG survey is under progress.

14. BUSINESS EXCELLENCE: GLOBAL BENCHMARKING
To achieve higher levels of excellence, NTPC has developed and adopted its own “Business Excellence Model” on the lines of globally reputed Excellence Models such as Malcolm Baldrige Model, USA and EFQM Model of Europe.

This model has been deployed at our Business Units (Stations) and assessment of generating stations is being carried out using this framework of excellence.

The assessment process is aimed at identifying the area for enhancing stakeholders’ engagement, improving critical processes and developing leadership potential.

The outcome of this model is identification of organizational strength, opportunities for improvement, issues of concern and best practices.

In the financial year 2016-17, 21 generating stations were assessed by a team of certified and professional assessors. Business Excellence Awards for Best Performance was given to Vindhyachal. Contemporary quality initiative and techniques like Quality Circles, Professional Circles, SS, integrated management system (IMS) etc. have been deployed across the organization for continuous improvement.

RENOVATION & MODERNISATION
In the present scenario of severe resource constraint, Renovation and Modernization (R&M) of power plants is considered to be a cost-effective option which can complement new capacity addition as R&M schemes have a shorter gestation period with all clearances, land, water, fuel and beneficiaries available. To this end, R&M is being carried out for the purpose of life extension of units, performance improvements, availability and reliability improvement and improved environment compliance. It ensures safe, reliable and economic electricity production by replacement of worn-out, deteriorated or obsolete electrical, mechanical, instrumentation, controls and protection system by state-of-the-art equipment.

Keeping in view the ageing of the fleet over the years, investment approval accorded till date for R&M in 19 stations (Coal & Gas based) is ₹ 14,275.93 crore. As against this, cumulative expenditure till 31.03.2017 is ₹ 6,272.84 crore. Out of this, R&M capital expenditure in the financial year 2016-17 was ₹ 592.53 crore.

With a view to remove technological obsolescence, renovation of control & instrumentation (C&I) had been taken up in 9 stations at Singrauli - I (5X200 MW) & Singrauli - II (2X500 MW), Korba - I (3X200 MW) & Korba - II (3X500 MW), Ramagundam - I (3X200 MW) & Ramagundam - II (3X500 MW), Farakka-II (2X500 MW), Dadri Thermal- I (4X9210 MW), Unchahar- I (2X9210 MW), Talcher STPS-I (2X5980 MW), Kahalgaon-I (4X210 MW) and Rihand - (2X500 MW) comprising a total of 35 units. During 2016-17, C&I R&M was completed in one 500 MW unit of Singrauli and one 210 MW unit of Kahalgaon. DDCMS R&M was completed in 26 units. On completion of these schemes, C&I systems in these stations have now been brought nearly at par with the new builds.

Owing to very high operating temperatures, R&M of Gas Turbines including their Control & Instrumentation was recommended by OEM after around 15 years of life. This activity was completed in all 4 Gas Turbines (GT) each in Kawas and in Auralya and all 3 GTs in Gandhar. To overcome obsolescence, R&M activity for C&I Systems of all modules of GT, ST & WHRB in Anta, Auralya and for one module of Dadri gas has been completed.

As a responsible corporate citizen, it has always been your Company’s endeavour to ensure low levels of pollution from its power stations. With a view to maintaining a clean atmosphere in and around the power plant by reduction of particulate
16. HUMAN RESOURCE MANAGEMENT

16.1 Your Company takes pride in its highly motivated and competent Human Resource that has contributed its best to bring the Company to its present heights. The productivity of employees is demonstrated by increase in generation per employee and consistent reduction of Man-MW ratio year after year. The overall Man-MW ratio for the year 2016-17 excluding JV/subsidiary capacity is 0.51 and 0.47 including capacity of JVs/Subsidiaries. Generation per employee was 12.16 MUs during the year based on generation of your Company's stations.

The attrition rate of NTPC executives during the year was 0.93%.

16.2 Employee Relations

Employees are the driving force behind the sustained stellar performance of your Company over all these years of Company’s ascendancy. As a commitment towards your Company’s core values, employees’ participation in Management was made effective based on mutual respect, trust and a feeling of being a progressive partner in growth and success. Communication meetings with unions and associations, workshop on production and productivity, etc. were conducted at projects, regions and corporate level during the year.

Both, employees and management complemented each other's efforts in furthering the interest of your Company as well as its stakeholders, signifying and highlighting overall harmony and cordial employee relations prevalent in your Company.

16.3 Safety and Security

Occupational health and safety at workplace is one of the prime concerns of Company Management and utmost importance is given to provide safe working environment and to inculcate safety awareness among the employees. Your Company has a 3-tier structure for Occupational Health and Safety management, namely at Stations/Projects, at Regional Head Quarters and at Corporate Centre. Safety issues are discussed in the highest forum of management like Risk Management Committee (RMC), Management Committee Meeting (MCM), ORTs, PRTs etc.

All of your Company’s stations are certified with OHSAS-18001/IS-18001. Regular plant inspection and review with Head of Project/Station is being done. Internal safety audits by safety officers every year and external safety audits by reputed organizations as per statutory requirement are carried out for each Project/Station. Recommendations of auditors are regularly reviewed and complied with.

Height permit and height check list are implemented to ensure safety of workers while working at height. Adequate numbers of qualified safety officers are posted at all units as per statutory rules/provisions to look after safety of men & materials. For strict compliance & enforcement of safety norms and practices by the contractors, safety clauses are included in General Conditions of Contract/Erection Conditions of Contract.

Detailed emergency plans have been developed and responsibilities are assigned to each concerned to handle the emergency situations. Mock drills are conducted regularly to check the healthiness of the system.
Most of your Company’s plants have been awarded with prestigious safety awards conferred by various institutions/Body like Ministry of Labour & Employment-Govt. of India, National Safety Council, Institute of Directors, Institution of Engineers (India), in recognition of implementing innovative safety procedures and practices.

Security: Your Company recognizes and accepts its responsibility for establishing and maintaining a secured working environment for all its installations, employees and associates. This is being taken care of by deploying CISF at all units of your Company as per norms of Ministry of Home Affairs. Concrete steps are being taken for upgrading surveillance systems at all projects/ stations by installing state-of-the-art security systems.

16.4 Training and Development

Your Company has consistently endeavored for attracting, on-boarding, grooming and motivating its talent recognising that nurturing the talent leads to competitive advantage.

In this process, your Company has always endeavored to be in the forefront of creation and dissemination of knowledge. Its sustained performance leadership has, to a large extent, been achieved on the platform of comprehensive learning and development programs for its employees. A large number of professionals from other organizations in the power sector have also benefitted immensely from the learning and development programs of your Company. It is not surprising to see many organisations in the country adopting practices and systems developed by your Company.

Our quest to keep the Company in tune with emerging business challenges is reflected in our new tagline for learning “Learning@$speed of business”.

The learning activities are being driven by a comprehensive infrastructure comprising NTPC Power Management Institute (PMI) at the corporate level, six Regional Learning Institutes (RLIs) located strategically in six large power stations of NTPC and Employee Development Centers (EDCs) located at almost all power projects and stations. At the foundation of the learning structure of your Company are the EDCs. The EDCs take care of training requirements of non-executives and junior level executives at the projects and stations. The training requirements of middle and senior level executives are catered to by RLIs at regional level and PMI, Noida at the corporate center as the apex learning center.

Together, the PMI, six RLIs and large number of EDCs form a strong learning grid covering the entire human resource of your Company. This learning grid enables us to provide learning solutions for practically every aspect of the power value chain, covering the strategic, tactical and operational facets right down to the shop floor and learning domains ranging from mining to distribution.

Initiatives taken by PMI:

(i) Learning and Development (L&D) interventions are designed and delivered after a multidimensional Training Need Analysis (TNA) focussed on enhancing technical, functional, strategic and leadership skills. Additionally, there are specific Planned Learning Interventions after about 7, 13 and 20 years of working in the Company which groom executives for the next level. In 2016-17, total 14 such planned interventions were carried for middle and senior level managers.

(ii) During 2016-17, PMI conducted almost 387 training programmes covering nearly 8,096 professionals, logging a total of approximately 30,898 training mandays.

(iii) PMI has also taken a learning initiative to develop a Project Analytics based learning module with an aim to bring paradigm change in Project Planning, Monitoring and Control. It will focus on creating single integrated dynamic Project Analytic System to facilitate active task management, measurement of progress, course correction and faster decision making for on-time project delivery.

(iv) Conducted about 34 training programs through Web conferencing platform at workstations during 2016-17.

(v) Launching the Harvard Managementor e-learning modules with 2000 licenses, which will be made available to middle level executives across the company.

(vi) Has been pioneer to start an Employee Assistance Program, a confidential expert counselling service for employees and their family members.

(vii) Started NTPC PMI eminent speaker series, in which eminent speakers from India and abroad are invited for delivering half day sessions on subjects like innovation, leadership, environment, water conservation, health and wellness, strategy etc. for top management and employees of your Company. This program is also telecasted live to all the projects, stations and offices of your Company across the country.

(viii) PMI has conducted several customized training programs for the benefit of State utilities (like Himachal Pradesh, Punjab, Rajasthan and Uttar Pradesh), PSEs (like PFC, REC, THDC, EESL, DVC etc.), private sector companies (Adani, ICICI, Siemens, GE India Power etc.)
SUSTAINABLE DEVELOPMENT

Your Company has adopted the ‘triple bottom-line’ approach recognizing People, Planet and Profit as the primary pillars of corporate sustainability and believes that Development should not endanger the natural systems.

Your Company is preparing Sustainability Report based on the Global Reporting Initiative (GRI). Sustainability reporting has helped us in measuring and monitoring the Company’s performance. It has served as an important management tool helping your Company to relook the systems, policies and procedures.

Your Company has developed a policy and in accordance with it, a Sustainable Development Plan was prepared for FY 2016-17. The main focus area of Sustainable Development Plan covers waste management, water management, bio-diversity, promotion of renewable energy. Major activities carried out under this plan include plantation of 10 million trees, installation of 310 kw rooftop of Solar PV at NTPC Dadri on public utilities buildings and on schools, Sewage treatment plant at Amarkantak, studies on impact assessment and carrying capacity river basin. Major activities under bio-diversity conservation taken up are conservation of Olive Ridley sea Turtles and study on bio-productivity of Gangetic Dolphin at NTPC Kahaigaon.

Business Responsibility Report is attached as Annex-X and forms part of the Annual Report Revenue expenditure of ₹ 35.33 Crore was incurred on these SD projects during Financial Year 2016-17.

17. Inclusive Growth – Initiatives for Social Growth

17.1 Corporate Social Responsibility:

Your Company commits itself to contribute to the society, discharging its corporate social responsibilities through initiatives that have positive impact on society at large, especially the community in the neighborhood of its operations by improving the quality of life of the people, promoting inclusive growth and environmental sustainability.

Focus areas of your Company’s CSR & Sustainability activities are Health, Sanitation, Drinking Water, Education, Capacity Building, Women Empowerment, Social Infrastructure Development, support to Physically Challenged Person (PCPs), and activities contributing towards Environment Sustainability.

During the year, more than 400 villages and more than 360 schools have been benefitted by your Company’s various CSR initiatives at different locations. These CSR initiatives have touched the lives of around 10 lakh people in one or the other way, residing at remote locations.

During 2016-17, special thrust had been given to the “Clean Water and Sanitation”, with an objective to provide adequate and equitable drinking water & sanitation and hygiene to the people around your Company’s operations and to end open defecation through construction of individual...
cluster and community toilets enabling a clean, safe, healthy, livable and sustainable city.

Your Company spent ₹ 277.81 crore during the financial year 2016-17 towards CSR initiatives, which surpassed the prescribed two percent amount of ₹ 297.85 crore, thus achieving a CSR spend of 2.43%.

17.1.2 NTPC Foundation

NTPC Foundation, funded by your Company, is engaged in serving and empowering the differently-abled and economically weaker sections of the society.

Details of expenditure incurred and initiatives undertaken by the Company under CSR are covered in the Annual Report on CSR annexed as Annex-VII to this Report.

17.1.3 Rehabilitation & Resettlement (R&R)

Your Company is committed to help the populace displaced for execution of its projects and has been making efforts to improve the Socio-economic status of Project Affected Persons (PAPs). In line with its social objectives, the Company has focused on effective resettlement and rehabilitation (R&R) of PAPs and also on community development works in and around its projects.

R&R activities are initiated at projects by undertaking need based community development activities in the area of health, education, water, capacity building, infrastructure etc. by formulating ‘Initial Community Development (ICD) Plan’ in consultation with concerned Panchayat, district administration and opinion makers of the locality. Your Company addresses R&R issues in line with its R&R Policy with an objective that after a reasonable transition period, the conditions of affected families improve or at least they regain their previous standard of living, earning capacity and production levels. As per the Policy, a detailed Socio-economic Survey (SES)/other Survey is conducted by a professional agency to create a baseline data of PAPs. This follows formulation of a ‘Rehabilitation and Resettlement (R&R) Plan’ after adequate consultation with stakeholders in ‘Village Development Advisory Committee (VDAC)’, which comprises representatives of PAPs, Gram Panchayats, NTPC and District Administration. R&R Plan consists of measures for rehabilitation, resettlement and need based community development (CD) activities.

R&R Plan is implemented in a time bound manner so as to complete its implementation by the time the project is commissioned. On completion of the R&R Plan implementation, a Social Impact Evaluation (SIE) is conducted by a professional agency to know the efficacy of R&R Plan implementation for future learnings.

17.1.4 R&R achievements during the year:

- Initial Community Development (ICD) Plan:
  Implementation of earlier approved ICD activities continued at Bilhaur and Pudimadaka projects.

- Rehabilitation and Resettlement (R&R) Plan:
  - R&R Plan for Khargone Railway siding covering R&R obligations and community development facilities in the area of Health, Education, Sanitation, Drinking water, infrastructure facilities finalized in consultation with stakeholders and approved. CD Plan for Telangana Phase-I also approved. R&R Plan provisions for Tanda-II project enhanced to take care of additional requirements for resettlement of PAPs.
  - R&R activities were implemented at the new Greenfield / Brownfield Thermal projects at Barh, Bongaigaon, Barethi, Darlipali, Gadarwara, Khargone, Muzaffarpur, Korba, Kudgi, Lara, Meja, Mouda, North-Karanpura, Solapur, Tanda-II, Unchahar-IV, Vailur, Vindhyachal-IV, Vindhyachal-V, Hydro projects at Koldam, Tapovan Vishnugad, Ramam-III and Coal Mining Projects at Pakri-Barwadigh, Chhattis-Bariatu, Kerendari, Dulanga and Talalpali where R&R / CD Plans were finalized in consultation and participation of the stakeholders and approved earlier as well as at Telangana where the CD Plan has been approved during the year. Re-appropriation of under implementation R&R / CD Plans as required on a case to case basis for specific projects was also approved to take care of the local requirements during implementation.

- Socio-economic Survey (SES)/Need assessment Survey (NAS)/ Census and Survey (C&S):
  SIA for Pudimadaka (earlier Lalam Koduru) project was conducted as per requirement.

- Focus areas for Community Development activities:
  - Swach Bharat Abhiyan – Various initiatives were taken to make project affected villages open defecation free by taking up activities related to construction of individual toilets and awareness programmes.
  - Drinking water – Planning and implementation for access to drinking water for 100% coverage of all project affected villages of your Company’s projects under construction is being undertaken.
• Capacity building / Skill upgradation—MOU / Tie up with National Skill Development Corporation (NSDC) is being implemented for imparting skill development to PAPs at various projects as part of ‘National Skill Development Mission’ of GOI.

• Education – Construction activities started for Medical College at Sundargarh (Odisha) and Engineering College at Shivpuri (MP). MOU signed with Govt. of Odisha for setting up a Polytechnic at Sundargarh (Odisha).

• Health - For the benefits of project affected persons and neighbouring population ‘Mobile Health Clinic’, Medical camps and dispensaries are being operated for comprehensive health coverage of PAPs at North Karanpura and mining projects at Jharkhand during the year.

17.2 Environment Management – Initiatives for preserving Environment

Vision Statement on Environment Management: “Going Higher on Generation, lowering GHG intensity”

Your Company has always envisaged environment protection and management practices as one of its prime responsibilities and focuses its efforts to minimize the impact of its operation on surrounding environment.

Your Company is undertaking massive renovation & modernization to upgrade air pollution equipments to reduce SPM emissions well below current statutory limits. Around 12%-15% of the project cost is spent on various environment protection equipments such as Electrostatic Precipitators (ESPs), Liquid Waste Treatment Plants (LWTP), Ash Water Recirculation System (AWRS), dry ash extraction system, dust extraction, suppression system, ambient air quality monitoring system, flue gas conditioning system and desulphurization system etc. It has adopted advanced and high efficiency technologies such as super critical boilers at new stations and upcoming green field projects.

Your Company is augmenting its capacity by installing solar power systems in a big way and small hydel power systems attached to its thermal power stations, wherever possible, so as to encourage garnering of renewable energy resources. These measures are aimed not only to achieve reduction in pollution and minimize use of precious natural resources but also to lead to reduction of CO₂ emissions per unit of generation thereby reducing global warming.

17.2.1 Control of Air Emissions:

High efficiency Electro-static Precipitators (ESPs) with efficiency of the order of 99.97% and above, with advanced control systems have been provided in all coal based stations to keep Particulate Matter (PM) below the prevailing permissible limits. All upcoming new plants are being provided with ESPs designed in such a manner that would cater to the notified future stringent norms. Performance enhancement of ESPs operating over the years is being carried out by augmentation of ESPs fields, retrofitting of advanced ESP controllers, new technology i.e. MEEP (Moving Electrode Electrostatic Precipitators) and adoption of sound O&M practices. Flue Gas Conditioning systems have also been provided at our old units which are helping in reduction of SPM emissions below statutory limits even during coal quality variations.

NOₓ control in coal fired plants is presently achieved by controlling its production by adopting best combustion practices (primarily through excess air and combustion temperatures controls). Over and above this, since tall stacks are provided in coal stations, gases emitted through stacks is widely dispersed and diluted. In gas based stations, NOₓ control systems (hybrid burners or wet DeNOₓ) have been provided for good combustion practices.

For compliance of new norms, pilot study based on SCR/SNCR technology are being undertaken at 11 locations to find out the optimal solution and suitable technology for DeNOₓ system.

For control of SO₂, first FGD has been commissioned at Vindhyachal. Erection of FGD at Bongaigaon is in advance stage.

Fugitive emission from ash pond is controlled by maintaining water cover, plantation on abandoned ash ponds, water spray and earth cover in inactive lagoons. Providing dust suppression and extraction system in CHP area has further added to reduction in fugitive dust in the vicinity of power stations.

17.2.2 Control of water pollution and promotion of water conservation:

Various water conservation measures have been taken up by your Company to reduce water consumption in power generation by using 3Rs (Reduce, Recycle & Reuse) as guiding principle.

Provision of advanced treatment facilities such as Liquid Waste Treatment Plants (LWTP), Coal Settlement Pit (CHP), Recycling Systems for Ash Pond Effluent called Ash Water Recirculation System (AWRS) and closed cycle condenser cooling water systems with higher Cycle of Concentration (COC), rain water harvesting wherever possible and reuse of treated sewage effluent for horticulture purposes are some of the measures implemented in most of the stations. For effective monitoring
of water use, flow meters with integrators are being installed at all designated stations. All these measures have resulted in reduction of effluent discharge from the power plants of your Company.

In view of water stressed scenario and new norms for specific water consumption, water conservation and reduction in water consumption per unit of generation has assumed great importance. Your Company has taken a proactive approach of making all its power stations to operate with ZLD (Zero liquid discharge) progressively in phases. ZLD at six power plants have already been completed during this fiscal year. Further, ZLD is planned in all other stations during the current year.

17.2.3 Automation of environment measurement system:
All the power stations are equipped with continuous ambient air quality monitoring stations (AAQMS) to capture the real time data of PM 10, PM 2.5, SO\textsubscript{2}, NO\textsubscript{x} and access thereof viz., and access has been provided to the Regulators such as Central Pollution Control Board and State Pollution Control Boards. Additional ozone analyzers for ambient air are also being provided phase-wise at the existing stations. Continuous Emission Monitoring Systems (CEMS) to monitor emissions of SO\textsubscript{2} and NO\textsubscript{x} in all units on real time basis 24x7 are installed and commissioned in addition to the opacity meter installed for monitoring of particulate emission. Installation of real time monitors for pollutants in effluents (EQMS) is also completed for all its existing projects. The real-time data is being transmitted to regulators through the cloud server and alerts are being generated in case of excursions beyond the limits. For all the upcoming projects, real time monitors for ambient air, effluents and emissions are included in the engineering packages during design stage itself.

17.2.4 Revised Emission Norms:
MOEF&CC vide notification dated 7th December, 2015, has stipulated the emission limits for Oxides of Nitrogen (NO\textsubscript{x}), Sulphur dioxide (SO\textsubscript{2}) and Mercury also and made stringent norms for particulate matter. The emission limits of these elements depend on the unit size and age of the units and shall be complied by 7th December, 2017 for all operating units. Various issues due to implementation of revised norms, including relaxation in time period for implementation, has been taken up with MOEF&CC.

Your company is designing its new plants to comply with new norms. Parallely various actions are being taken up for operating units and under construction units for meeting revised norms. Your company has already undertaken extensive R&M of ESPs for complying emission limit of particulate matter. For meeting SO\textsubscript{2} emission limit, first set of tenders for installation of Flue Gas De-sulphurisation (FGD) has been issued for 54 units of around 33GW. Selective catalytic reduction (SCR) will be required for controlling of NO\textsubscript{x} for which Pilot test studies are being undertaken at various NTPC operating stations to check the suitability of SCR technology for high ash and abrasive ash. Once the technology for DeNO\textsubscript{x} is established, which is expected by Mid-2018, tendering for implementation for NO\textsubscript{x} control with SCR will be taken up.

17.2.5 Tree Plantation:
Your Company is undertaking tree plantation covering vast areas of land in and around its projects and till date about 32 million trees have been planted throughout the country including 10 million trees planted during 2016-17 under accelerated afforestation programme.

The afforestation has not only contributed to the ‘aesthetics’ but also helped in carbon sequestration by serving as a ‘sink’ for pollutants released from the stations and thereby protecting the quality of ecology and environment. Further, your Company has embarked upon long-term Memorandums with State authorities to assist National Commitment of INDC in COP 21, by planning to plant 10 million trees during 2016-2026 @ 1 million trees per year across the country.

17.2.6 ISO 14001 & OHSAS 18001 Certification:
All stations of your Company have been certified with ISO 14001 and OHSAS 18001 by reputed National and International certifying agencies as a result of sound environment management systems and practices.

17.3 Quality Assurance and Inspection (QA&I)
Your Company continues to place great emphasis on quality, with the view to secure long term reliability and availability of its productive assets and the investments. This is ensured by committing adequate number of qualified and trained human resources for quality related activities, maintaining field laboratories at the construction sites and pursuing time tested systems & processes, resulting in world class standards of performance of the plants.

In your Company, quality needs are identified & planned, keeping in mind the interests of all the stake holders, by interacting with major Power Equipment manufacturers of the world, thereby embracing the latest technologies available. The quality requirements associated with such technologies are rigorously pursued during manufacturing, erection & commissioning of various products/ systems/ services. The dynamic feedback system ensures that the gaps, if any, are filled through resetting the methods and standards resulting in continuous improvement.

Your Company's robust performance on all parameters, is a testimony to the soundness of the quality system deployed.

Your Company is represented on various technical committee of ISO and IEC and is actively
17.4 Clean Development Mechanism (CDM)

Your Company is addressing climate change issues proactively.

Your Company has taken several initiatives in CDM projects in Power Sector. It has gone ahead with nine projects in CDM foray, 8 MW Small Hydro Power Project at Singrauli, three 5 MW solar PV projects at Dadri, Port Blair (Andaman & Nicobar) & Faridabad, 50 MW Solar PV project at Rajgarh (MP) & 10 MW Solar PV Project at Unchahar had already been registered with UNFCCC CDM Executive Board with estimated annual Certified Emission Reductions (CERs) potential of approx. 1,57,000. Another three Solar PV projects i.e. 15 MW Singrauli (UP), 10 MW Talcher (Odisha) & 10 MW Ramagundam (Telangana) are in advanced stage of registration.

17.5 Ash Utilisation

During the year 2016-17, 50.58% viz. 295.69 lakh tonnes (52.38% viz 335.1 lac tonnes including JV & Subsidiaries) of ash had been utilized for various productive purposes.

Important areas of ash utilization are - cement & asbestos industry, ready mix concrete plants (RMC), road embankment, brick making, mine filling, ash dyke raising & land development.

Pond ash from all stations of your 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 is being maintained in the separate account and this fund is being utilized for development of infrastructure facilities, promotion and facilitation activities to enhance ash utilization.

Your Company has an Ash Utilization 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 along with fulfilling social and environmental obligations as a green initiative in protecting the nature and giving a better environment to future generations.

The quantity of ash produced, ash utilized and percentage of such utilization during 2016-17 from your Company's Stations is at Annex VIII.

17.6 CenPEEP – towards enhancing efficiency and protecting Environment

Your 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 43.7 million tonnes since 1996, by sustained efficiency improvements. CenPEEP is working for efficiency and reliability improvement in stations through strategic initiatives, development and implementation of systems and introduction of new techniques & practices. Critical efficiency parameter, draft power consumption, efficiency improvement through overhauling are monitored. PI based real time programs and dashboards are in use for real time tracking of plant parameters. These programs also assist operating engineers in tracking the gaps in heat rate and auxiliary power consumption and trending the degradation of equipment performance.

CenPEEP is also working towards reduction in specific water consumption and auxiliary power consumption in coal and gas stations. A dedicated group CEETEM – Centre for Energy Efficient Technology & Energy Management, conducts regular Energy audits to identify potential improvement areas and improvement actions.

CenPEEP is actively involved in training and development of power professionals for the Company and other utilities in the power sector in the areas of Boiler & Auxiliaries, Turbine & Auxiliaries, Cooling Towers, RCM and Pdm technologies etc.

CenPEEP coordinated implementation of Perform, Achieve & Trade (PAT) scheme under Prime Minister's National Mission on Enhanced Energy Efficiency (NMEEE) in your Company coal & gas plants. As per notification, Company's coal and gas stations exceeded the Net Heat Rate improvement targets and earned net 170653 EScerts (Energy saving certificates) in PAT-1 cycle. CenPEEP is taking up benchmarking study for your Company coal station by EPRI. Performance & Guarantee tests are being coordinated by CenPEEP which includes approval of procedure, conducting test & its evaluation.

18. NETRA

Your Company, as the leading power utility of the country, has been assignaing a minimum of 1% of its PAT for R&D activities.

Your Company has focused its research efforts to address the major concerns of the sector as well as the future technology requirements of the sector. In this effort, your Company has established NTPC Energy Technology Research Alliance (NETRA) as state-of-the-art centre for research, technology development and scientific services in the domain of electric power to enable seamless work flow right from concept to commissioning. The focus areas of NETRA are - Efficiency Improvement & Cost Reduction; New & Renewable Energy; Climate Change & Environmental Protection which includes Water Conservation, Ash Utilization & Waste Management. NETRA also provides
Advanced Scientific Services to its stations and other utilities in the area of oil/water chemistry, environment, electrical, Rotor dynamics etc. for efficient performances.

Research Advisory Council (RAC) of NETRA comprising eminent scientists and experts from India and abroad is in place to steer research direction.

Scientific Advisory Council (SAC) provides directions for undertaking specific applied research projects aimed to develop technologies in power plant for efficient, reliable and environment friendly operation with emphasis on reducing cost of generation.

Initiatives are taken to develop technologies for reducing forced outages, installing intelligent online monitoring of critical components, understanding the likely damages due to corrosion and providing appropriate solutions etc. Effort is being made for reducing cost of generation by either increasing the overhaul cycle or reducing overhaul duration through correct and proper health assessment of critical components, developing diagnostic tools and ensuring environmental & safety compliances. The prime thrust is towards clean and economic power generation. Patents have been filed in the areas of climate change, waste management etc.

NETRA has collaborations with National Institutes like IITs, IISc-Bangalore, C-DAC, NML, CSIR labs, IOCL R&D, CPRI, CINFR, CBRI Roorkee and Geological Survey of India, etc. to promote research in the field of CFD, Flow batteries, Renewable, environment, water chemistry, ash utilization, process development, etc.

NETRA is setting up Solar Thermal & PV Labs under the aegis of Indo German R&D co-operation. Projects on improvement in the ESP performance through CFD modeling has been undertaken with Excellence Enhance Centre (EEC), VGB Germany. NETRA is also a member of EPRI USA.

NETRA laboratories are ISO 17025 accredited and provide high end scientific services to all the stations of your Company as well as many other utilities. NETRA NDT laboratory is also recognized as Remnant Life Assessment Organization under the Boiler Board Regulations, 1950.

Phase-II NETRA infrastructure is under construction with approx. 21,000 sq m floor area and is expected to be completed by 2018. Phase-II will have 30 laboratories, workshop, pilot plant bay and an auditorium with seating capacity of 400 persons.

The details of activities undertaken by NETRA are given in Annex-III.

19. IMPLEMENTATION OF OFFICIAL LANGUAGE

Several initiatives were taken for the progressive use of Hindi in day to day official work and implementation of Official Language policy of the union of India in your Company. The compliance of Official Language policy in our projects and regional headquarters was inspected and need based suggestions were given to the respective Heads of offices in this regard.

Quarterly meeting of Official Language Implementation Committee were held under the chairmanship of CMD & Director (HR), in which extensive discussions took place on the use of Hindi and the ways and means to bring about further improvements.

Hindi Divas was celebrated on 14th September 2016 and Hindi Fortnight was organised from 01-15 September, 2016 at Corporate Centre as well as regional headquarters and projects to create awareness among the employees, associates and their family members. Vidyut Swar, our biannual Hindi magazine was published to promote creative writing in Hindi. Annual conference of Hindi Officers organised to review the progress of Rajbhasha in your Company.

Employees were motivated to use Hindi in official work by organising Hindi workshop, Unicode Hindi Computer Training and Hindi incentive schemes. Hindi webpage was updated with important information of Rajbhasha for employees.

The second sub-committee of Parliament on official Language had inspected our units and Headquarters; reviewed the progress of Rajbhasha implementation and appreciated our efforts.

Your Company’s website also has a facility of operating in bilingual form, in Hindi as well as in English.

20. VIGILANCE

20.1 Vigilance Mechanism

Your Company ensures transparency, objectivity and quality of decision making in its operations, and to monitor the same, the Company has a Vigilance Department headed by Chief Vigilance Officer, a nominee of Central Vigilance Commission. Vigilance set up comprises Vigilance Executives in Corporate Centre and Projects. Corporate Vigilance consists of four cells namely Investigation & Processing Cell, Departmental Proceedings Cell, Technical Examination Cell and MIS Cell deal with various facets of vigilance mechanism. For speedier disposal of vigilance cases, works have been assigned to Vigilance Executive at each of the regions of the Company.

344 surprise checks were made during the period.
20.2 Implementation of Integrity Pact

Your Company is committed to have total transparency to its business processes and as a step in this direction; it signed a Memorandum of Understanding with Transparency International India in December, 2008. The Integrity Pact is being implemented for all contracts having value exceeding ₹10 crore. Presently, your Company is having one Independent External Monitor to oversee the implementation of Integrity Pact Programme.

20.3 Implementation of various policies/ circulars

Fraud Prevention Policy and Whistle Blower Policy have been implemented in your Company to build and strengthen a culture of transparency. Your Company has also laid down a comprehensive policy for withholding and banning of business dealings with agencies, wherever the situation so demands. During 2016-17, 117 complaints were handled, out of which 71 complaints were carried to a logical conclusion and the remaining 46 complaints are under various stages of investigation. Appropriate disciplinary action has also been initiated wherever necessary.

20.4 Vigilance Awareness Week and Workshops

During 2016-17, 11 preventive vigilance workshops were conducted at various projects/places in which 477 employees participated. Vigilance Awareness Week was observed from October 31, 2016 to November 5, 2016 in all the projects and stations/establishments of your Company.

The focus of Vigilance Awareness Week was “Public Participation in Promoting Integrity and eradicating Corruption”. 72,380 pamphlets were distributed containing Citizens Pledge in bilingual at all locations of Projects and Regional Headquarters all over the country. 45 links were provided for e-pledges to be placed on intranets of all projects/Subsidiaries and Joint Ventures. 32 workshop/sensitization programmes were conducted at various locations of Projects and Regional Headquarters. A total no. of 165 competitions (debates, quiz etc.) held for employees and families at various locations of Projects and Regional Headquarters all over the country were conducted. Outreach activities were conducted in 48 Colleges/Universities in 17 States in which 3,297 no. of students participated. Similarly, outreach activities were conducted in 127 schools in 17 states in which 11,992 students participated. 19 Customer Grievance Redressal Camps were organized at Projects in which vendors concerns and suggestions were discussed and noted. Use of Social Media, Facebook, Twitter & LinkedIn were made for the purpose.

21. REDRESSAL OF PUBLIC GRIEVANCES

Your Company is committed for resolution of public grievances in efficient and time bound manner. ED (Human Resources) has been designated as Director (Grievance) to facilitate earliest resolution of public grievances received from President Secretariat, Prime Minister's Office, Ministry of Power etc.

In order to facilitate resolution of grievances in transparent and time bound manner, Department of Administrative Reforms & Public Grievances, Department of Personnel & Training, Government of India has initiated web-based monitoring system at www.psgportal.gov.in.

As per directions of GOI, public grievances are to be resolved within two months time. If it is not possible to resolve the same within two months period, an interim reply is to be given. Your Company is making all efforts to resolve grievances in above time frame.

22. RIGHT TO INFORMATION

Your Company has implemented Right to Information Act, 2005 in order to provide information to citizens and to maintain accountability and transparency. The Company has put RTI manual on its website for access to all citizens of India and has designated a Central Public Information Officer (CPIO), an Appellate Authority and APIOs at all sites and offices of the Company.

During 2016-17, 1,580 applications were received under the RTI Act, 2005 out of which 1,496 applications were replied to, till 31.03.2017.

23. USING INFORMATION AND COMMUNICATION TECHNOLOGY FOR PRODUCTIVITY ENHANCEMENT

Your Company is leveraging Information Technology in its goal of sustainable growth in business. Since 2008, your Company has implemented Enterprise Resource Planning (ERP) application to integrate all its business functions to improve information availability, transparency and decision making. PI data system has been developed to capture, display and analyze the plant performance parameters on real time basis. Non-ERP applications areas are Engineering Drawings approval, Quality Control Management, Hospital Management, Transit Camp Management, RTI, Security Control etc.

The Stations projects and Offices across India, are connected to Corporate Office and main Data-centre (DC) through 2x12 mbps MPLS links to facilitate seamless communication. The DC and DR (Disaster Recovery) site is connected with 156 mbps MPLS links for data backup. The progress of ongoing projects and issues of the running power stations are discussed regularly over high definition Video Conferencing system at Project Monitoring Centre of Corporate Office. Dashboards for top
management (REDs, Heads of Projects) were developed and deployment of the same is in progress. Some of the highlights of the progress in IT/ERP area during the year 2016-17 are as follows:

**ERP Hardware Refresh** - The Hardware refresh of both ERP Data centre and Disaster Recovery Centre was carried out. Your Company also built and commissioned its own Disaster Recovery Centre. The Company was awarded with Data Centre Transformation award at Indian Express IT meet. The availability of ERP and DR set up was more than 99.9% during the year.

**ERP** - The Employee Self Service Portal was launched on Internet. A number of new processes such as commercial billing as per 2014-19 tariff, Coal mining, FGD, third party coal sampling, Self-Booking Travel Interface with Balmer Lawrie, PMS for all etc. were developed in ERP.

**Paperless Office** - In an effort towards ‘Go Green’ initiative, a number of processes like e-MB, Telephone claim, Travel Claim, Probation clearance etc. were made paperless. Tender has been initiated for Enterprise Content Management to go for 100% digitization across the organization. Board Agenda is being e-mailed to the Board Members in encrypted form through an in-house software.

**Security** – No major security breach was observed during the year 2016-17. A 24x7 Security Operation Centre (SOC) is in operation where round the clock monitoring of all external and internal data traffic is being analyzed with latest tools monitored through SOC and latest threat management tools are being applied to prevent any cyberattack or data theft. Timely communication is being sent to all users based on threat perception. The IT security Audit for plants have been completed.

**Mobile Apps** - Emphasis is being given for digital communication in place of paper communication. A number of mobile apps have been developed for ease in communication.

**Vendor Bill Tracking Portal** - Online Vendor Bill Tracking Portal was developed and deployed for bill submission and bill tracking by the vendors. Other Vendor Portals are also in operation to facilitate for registration and bidding.

24. **NTPC GROUP: SUBSIDIARIES AND JOINT VENTURES**

Your Company has currently 5 subsidiary companies and 18 joint venture companies for undertaking specific business activities.

Besides 18 joint venture companies detail of which is elsewhere in this Report, National Power Exchange Limited and Pan-Asian Renewables Private Limited have been wound up by the Order of Hon’ble High Court.

NTPC-SCCL Global Ventures Private Limited is also being wound up voluntarily. In view of lack of suitable commercially viable opportunities for thermal coal, your Company has decided to exit from International Coal Ventures Private Limited.

A statement containing the salient feature of the financial statement of your Company’s Subsidiaries, Associate Companies and Joint Ventures as per first proviso of section 129(3) of the Companies Act, 2013 is included in the consolidated financial statements.

25. **INFORMATION PURSUANT TO STATUTORY AND OTHER REQUIREMENTS**

Information required to be furnished as per the Companies Act, 2013 and as per SEBI (Listing Obligations & Disclosure Requirements) Regulations, 2015 are as under:

25.1 **Statutory Auditors**


The appointment of the same Statutory Auditors for the financial year 2017-18 has also been made by the Comptroller & Auditor General of India.

25.2 **Management comments on Statutory Auditors’ Report**

The Statutory Auditors of the Company have given an un-qualified report on the accounts of the Company for the financial year 2016-17. However, they have drawn attention under ‘Emphasis of Matter’ to Note No. 37 (a) & (b) regarding billing & recognition of sales on provisional basis and measurement of GCV of coal on ‘as received’ basis after secondary crusher till 30th September 2016 and GCV measured on wagon top at the unloading point w.e.f. 1st October 2016 in respect of most of the stations pending disposal of petition by CERC and ratification by Hon’ble Delhi High Court and related matters as mentioned in the said note; Note No.47 in respect of a Company’s ongoing project where the order of NGT has been stayed by the Hon’ble Supreme Court of India and the matter is sub-judice; and Note No. 60 regarding recognition of an impairment loss of ₹ 782.95 crore in respect of investment in joint venture Ratnagiri Gas & Power Private Limited (RGPL) as ‘Exceptional Items - impairment loss on investment’ in the Statement.
of Profit and Loss based on recoverable amount of these investments arrived at by an independent expert after considering the proposed demerger scheme awaiting approval of NCLT, New Delhi.

The issues have been adequately explained in the respective Notes referred to by the Auditors.

25.3 Review of accounts by Comptroller & Auditor General of India (C&AG)


The Comptroller & Auditor General of India, through letter dated 24.07.2017, has also given ‘NIL’ Comments on the Consolidated Financial Statements of your Company for the year ended 31st March 2017 after conducting supplementary audit under Section 143 (6) (a) read with Section 129 (4) of the Companies Act, 2013.

As advised by the Office of the Comptroller & Auditor General of India (C&AG), the comments of C&AG for both the stand-alone and consolidated financial statements of your Company for the year ended 31st March 2017 are being placed with the report of Statutory Auditors of your Company elsewhere in this Annual Report.

25.4 COST AUDIT

As prescribed under the Companies (Cost Records and Audit) Rules, 2014, the Cost Accounting records are being maintained by all stations of your Company.


The due date for filing consolidated Cost Audit Report in XBRL format for the financial year ended March 31, 2016 was September 30, 2016 and the consolidated Cost Audit Report for your Company was filed with the Central Government on September 28, 2016.

The Cost Audit Report for the financial year ended March 31, 2017 shall be filed within the prescribed time period under the Companies (Cost Records & Audit) Rules, 2014.

25.5 Exchange Risk Management

Your Company is exposed to foreign exchange risk in respect of contracts denominated in foreign currency for purchase of plant and machinery, spares and fuel for its projects/ stations and foreign currency loans.

In term of its Exchange Risk Management Policy, during financial year 2016-17, your Company has entered into derivative contracts amounting to USD 101 million equivalent in different currencies in respect of foreign currency loans exposure.

25.6 Performance Evaluation of the Directors and the Board

Ministry of Corporate Affairs (MCA), through General Circular dated 5th June, 2015, has exempted Government Companies from the provisions of Section 178 (2) of the Companies Act, 2013 which requires performance evaluation of every director by the Nomination & Remuneration Committee. The aforesaid circular of MCA further exempted listed Govt. Companies from provisions of Section 134 (3) (p) of the Companies Act, 2013 which requires mentioning the manner of formal evaluation of its own performance by the Board and that of its Committees and Individual Director in Board’s Report, if directors are evaluated by the Ministry or Department of the Central Government which is administratively in charge of the company, or, as the case may be, the State Government as per its own evaluation methodology.

Now, MCA, through Notification dated 05.07.2017, has amended Schedule IV to the Companies Act, 2013 with respect to performance evaluation of directors of the Government Companies that in case of matters of performance evaluation are specified by the concerned Ministries or Departments of the Central Government or as the case may be, the State Governments and such requirements are complied with by the Government companies, such provisions of Schedule IV are exempt for the Government Companies.

Further, Deptt. of Public Enterprises (DPE) has already laid down a mechanism for performance appraisal of all functional directors. Your Company enters into Memorandum of Understanding (MOU) with Government of India each year, demarcating key performance parameters for the Company. The performance of the Company and Board of Directors are evaluated by the Department of Public Enterprises vis-à-vis MOU entered into with the Government of India.

Similar exemption has been requested from SEBI under the SEBI LODR, which is under consideration.

25.7 Secretarial Audit

The Board has appointed M/s Agarwal S. & Associates, Company Secretaries, to conduct Secretarial Audit for the financial year 2016-17. The Secretarial Audit Report for the financial year ended March 31, 2017 is annexed herewith marked as Annexure XI to this Report.
The Management’s Comments on Secretarial Audit Report are as under:

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<tr>
<th>Observations</th>
<th>Management’s Comments</th>
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<tr>
<td>Compliance of Regulation 17(1) of SEBI LODR Regulations, 2015 and DPE Guidelines on Corporate Governance for CPSEs, the Company should have nine Independent Directors since Company has seven functional Directors including the Chairman &amp; Managing Director and two Government Nominee Directors on its Board. At present, Company has three Independent Directors in position. Being a Government Company, the power to appoint the Directors on the Board of the Company vests with the President of India and accordingly, the Company is, from time to time, requesting Ministry of Power to appoint requisite number of Independent Directors on its Board.</td>
<td>Refer Para 25.6</td>
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<tr>
<td>Particulars of contracts or arrangements with related parties</td>
<td>As per Regulation 17(1) of SEBI LODR Regulations, 2015 and DPE Guidelines on Corporate Governance for CPSEs, the Company should have nine Independent Directors since Company has seven functional Directors including the Chairman &amp; Managing Director and two Government Nominee Directors on its Board. At present, Company has three Independent Directors in position. Being a Government Company, the power to appoint the Directors on the Board of the Company vests with the President of India and accordingly, the Company is, from time to time, requesting Ministry of Power to appoint requisite number of Independent Directors on its Board.</td>
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<td>Adequacy of internal financial controls with reference to the financial reporting: The Company has in place adequate internal financial controls with reference to financial reporting. During the year, such controls were tested and no reportable material weakness in the design or operation was observed.</td>
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<td>Prevention, Prohibition and Redressal of Sexual Harassment of Women at Workplace</td>
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During the period under review, your Company had not entered into any material transaction with any of its related parties. The Company's major related party transactions are generally with its subsidiaries and associates. All related party transactions were in the ordinary course of business and were negotiated on an arm's length basis except with Utility Powertech Limited, which are covered under the disclosure of Related Party Transactions in Form AOC-2 (Annex- IX) as required under Section 134(3)(h) of the Companies Act, 2013. They were intended to further enhance your Company's interests.

Web-link for Policy on Materiality of Related Party Transactions & also on Dealing with Related Party Transactions has been provided in the Report on Corporate Governance, which forms part of the Annual Report.

25.9 Significant and material orders passed by the regulators or courts or tribunals impacting the going concern status and company's operations in future: NIL

25.10 Adequacy of internal financial controls with reference to the financial reporting: The Company has in place adequate internal financial controls with reference to financial reporting. During the year, such controls were tested and no reportable material weakness in the design or operation was observed.

25.11 Loans and Investments Details of Investments covered under the provisions of Section 186 of the Companies Act, 2013 forms part of financial statement, attached as a separate section in the Annual Report for FY 2016-17.

Your Company had granted loans to its subsidiaries namely, Patratu Vidyut Utpadan Nigam Limited (PVUNL) and Kanti Bijlee Utpadan Nigam Limited (KBUNL) during 2016-17 covered under Section 185 and 186 of the Companies Act, 2013. The details of loans granted to PVUNL and KBUNL is given in Note – 57 of Standalone Financial Statements for 2016-17.

25.12 Prevention, Prohibition and Redressal of Sexual Harassment of Women at Workplace

Your Company has in place a Policy on Prevention, Prohibition and Redressal of Sexual Harassment of Women at Workplace in line with the requirements of the Sexual Harassment of Women at the Workplace (Prevention, Prohibition & Redressal) Act, 2013. Internal Complaints Committee (ICC) has been set up to redress complaints received regarding sexual harassment. All employees (permanent, contractual, temporary, trainees) are covered under this policy.

These ICCs have been constituted at all Projects/ stations also. Every three years, the constitution of these committees is changed and new members are nominated.
No complaint of sexual harassment was received by the ICC during the year 2016-17.

Your Company has been conducting gender sensitization workshops for building a collaborative and safe work culture across the organisation. 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 behaviour at the workplace. During 2016-17, PMI has conducted nine such workshops across the organization covering about 200 employees.

25.13 Procurement from MSEs

The Government of India has notified a Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012. The total procurement made from MSEs (including MSEs owned by SC/ST entrepreneurs) during the year 2016-17 was ₹ 1,019.06* crore, which was 25.61% of total annual procurement of ₹ 3,978.40* crore against target of 20% of total procurement made by your Company.

The total procurement made from MSEs owned by SC/ST entrepreneurs during the year 2016-17 was ₹ 15.59* crore, which was 0.39% against the target of 4% of total procurement value.

*It excludes Primary fuel, Secondary fuel, Steel & Cement, the Project procurement including R&M packages and procurement from OEM, OES & PAC sources.

Your Company organised 15 vendor development programmes for MSEs. Annual procurement plan for purchases from MSEs is uploaded on www.ntpc.co.in.

25.14 Particulars of Employees

As per provisions of Section 197(12) of the Companies Act, 2013 read with Rule 5 of the Companies (Appointment and Remuneration of Managerial Personnel) Rules, 2014, every listed company is required to disclose the ratio of the remuneration of each director to the median employee's remuneration and details of employees receiving remuneration exceeding limits as prescribed from time to time in the Directors' Report.

However, as per notification dated 5th June, 2015 issued by the Ministry of Corporate Affairs, Government Companies are exempted from complying with provisions of Section 197 of the Companies Act, 2013. Therefore, such particulars have not been included as part of Directors' Report.

25.15 Extract of Annual Return:

Extract of Annual Return of the Company is annexed herewith as Annexure VI to this Report.

25.16 Information on Number of Meetings of the Board held during the year, composition of committees of the Board and their meetings held during the year, establishment of vigil mechanism/ whistle blower policy and web-links for familiarization/ training policy of directors, Policy on Materiality of Related Party Transactions and also on Dealing with Related Party Transactions and Policy for determining 'Material' Subsidiaries have been provided in the Report on Corporate Governance, which forms part of the Directors Report at Annex-II.

25.17 Para on development of risk management policy including therein the elements of risks are given elsewhere in the Annual Report.

25.18 No disclosure or reporting is required in respect of the following items as there were no transactions on these items during the year under review:
1. Issue of equity shares with differential rights as to dividend, voting or otherwise.
2. Issue of shares (including sweat equity shares) to employees of the Company under any scheme.

The particulars of annexures forming part of this report are as under:

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26. BOARD OF DIRECTORS & KEY MANAGERIAL PERSONNEL

Shri Seethapathy Chander had been appointed as Independent Director w.e.f. 29.06.2016 for a period of three years.

On completion of three years’ tenure, Shri Prashant Mehta has ceased to be Independent Director of the Company w.e.f. 29.07.2016 (A/N).

Shri U.P. Pani ceased to be Director (Human Resources) of the Company w.e.f. 31.10.2016 on attaining the age of superannuation.

Shri Saptarshi Roy, Executive Director had taken over the charge as Director (Human Resources) of the Company w.e.f. 01.11.2016.

Shri Anand Kumar Gupta, Executive Director had taken over the charge as Director (Commercial) of the Company w.e.f. 03.02.2017.

Shri A.K. Rastogi, Executive Director & Company Secretary separated from NTPC Limited w.e.f. 28.02.2017 after taking pre-mature retirement. Shri K.P Gupta, Executive Director took over the charge as Company Secretary on 29.03.2017.

The Board wishes to place on record its deep appreciation for the valuable services rendered by Shri Prashant Mehta, Shri U.P. Pani and Shri A.K. Rastogi during their association with the Company.

In accordance with Section 152 of the Companies Act, 2013 and the provisions of the Articles of Association of the Company, Shri K.K. Sharma, Director shall retire by rotation at the Annual General Meeting of your Company and, being eligible, offers himself for re-appointment.

27. DIRECTORS’ RESPONSIBILITY STATEMENT

As required under Section 134 (5) of the Companies Act, 2013, your Directors confirm that:

1. in the preparation of the annual accounts, the applicable accounting standards had been followed along with proper explanation relating to material departures;

2. the Directors had selected such accounting policies and applied them consistently and made judgments and estimates that are reasonable and prudent so as to give a true and fair view of the state of affairs of the company at the end of the financial year 2016-17 and of the profit of the company for that period;

3. the Directors had taken proper and sufficient care for the maintenance of adequate accounting records in accordance with the provisions of the Companies Act, 2013 for safeguarding the assets of the company and for preventing and detecting fraud and other irregularities;

4. the Directors had prepared the Annual Accounts on a going concern basis;

5. the Directors had laid down internal financial controls to be followed by the company and that such internal financial controls are adequate and were operating effectively; and

6. the Directors had devised proper systems to ensure compliance with the provisions of all applicable laws and that such systems were adequate and operating effectively.

28. ACKNOWLEDGEMENT

The Directors of your Company acknowledge with deep sense of appreciation, the co-operation received from the Government of India, particularly the Prime Minister’s Office, Ministry of Power, Ministry of New & Renewable Energy, Ministry of Finance, Ministry of Environment, Forests & Climate Change, Ministry of Coal, Ministry of Petroleum & Natural Gas, Ministry of Railways, Department of Public Enterprises, Central Electricity Authority, Central Electricity Regulatory Commission, Comptroller & Auditor General of India, Appellate Tribunal for Electricity, State Governments, Regional Power Committees, State Utilities and Office of the Attorney General of India.

The Directors of your Company also convey their gratitude to the shareholders, various international and Indian Banks and Financial Institutions for the confidence reposed by them in the Company.

The Board also appreciates the contribution of contractors, vendors and consultants in the implementation of various projects of the Company.

We also acknowledge the constructive suggestions received from the Office of Comptroller & Auditor General of India and Statutory Auditors.

We wish to place on record our appreciation for the untiring efforts and contributions made by the employees at all levels to ensure that the company continues to grow and excel.

For and on behalf of the Board of Directors

(Gurdeep Singh)
Chairman & Managing Director
DIN: 00307037
Place: New Delhi
Date: 4th August, 2017