Bara thermal power station has a capacity of 1,980 MW with three units of 660 MW each (see Table 1: Compliance deadlines for units in Bara thermal power station). It is operated by Prayagraj Power a subsidiary under Jaypee group, and is located in Allahabad district.

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>Capacity in MW</th>
<th>Commissioning Year</th>
<th>Compliance deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>660</td>
<td>2015</td>
<td>Apr 2020</td>
</tr>
<tr>
<td>2</td>
<td>660</td>
<td>2016</td>
<td>Jun 2020</td>
</tr>
<tr>
<td>3</td>
<td>660</td>
<td>2017</td>
<td>Feb 2020</td>
</tr>
</tbody>
</table>

Source: Central Electricity Authority, 2019

**EMISSIONS AND SUGGESTED TECHNOLOGY:**

- **Particulate matter:** The CEMS data/any emission data from the station is unavailable in public domain (see Table 2: Particulate Matter emissions in Bara thermal power station).

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>CEMS</th>
<th>Lab</th>
<th>Norm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NA</td>
<td>NA</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>NA</td>
<td>NA</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>NA</td>
<td>NA</td>
<td>50</td>
</tr>
</tbody>
</table>

Source: Centre for Science and Environment, 2019

- **Sulphur dioxide:** The CEMS data/any emission data from the station is unavailable in public domain (see Table 3: Sulphur dioxide emissions in Bara thermal power station). CSE based on coal quality stoichiometrically estimates over 1000 mg/N.cu.m sulphur dioxide emissions.
Table 3: Sulphur Dioxide emissions in Bara thermal power station

Current emission level data is unavailable in public domain

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>CEMS</th>
<th>Lab</th>
<th>CSE’s estimate</th>
<th>Norm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NA</td>
<td>NA</td>
<td>over 1000</td>
<td>200</td>
</tr>
<tr>
<td>2</td>
<td>NA</td>
<td>NA</td>
<td>over 1000</td>
<td>200</td>
</tr>
</tbody>
</table>

Table 4: Oxides of nitrogen emissions in Bara thermal power station

Current emission level data is unavailable in public domain

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>CEMS</th>
<th>Lab</th>
<th>Norm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NA</td>
<td>NA</td>
<td>300</td>
</tr>
<tr>
<td>2</td>
<td>NA</td>
<td>NA</td>
<td>300</td>
</tr>
<tr>
<td>3</td>
<td>NA</td>
<td>NA</td>
<td>300</td>
</tr>
</tbody>
</table>

**Oxides of nitrogen:** The CEMS data/any emission data from the station is unavailable in public domain station (see Table 4: Oxides of nitrogen emissions in Bara thermal power station).

The plant was commissioned recently and is of large size 660 MW. According to experts, these must be equipped with low-NO\(_x\) burners and over-fire air system. Therefore, it will require primary control measures such as combustion optimisation to meet the new norms.

**CURRENT STATUS:**

- Feasibility study is under process. The plant has requested the govt. for FGD implementation date to be postponed by 5-6 years.

**ACTION PLAN**

- CSE has prepared unit-wise action plan for all three pollutants. The action plan is based on deadlines given under Section 5 notices sent by the Central Pollution Control Board in December, 2017, which were also submitted to the Supreme Court. In turn, the deadlines were based on the Phase-in Plan prepared by the CEA and the Regional Power Committees.

- The Action plan has been based on discussions with industry experts and manufacturers on time taken for various stages. We have converted the major project processes/stages into key milestones that can be used by PCB officials to track progress.

- A fair share of activities has been presumed to have already been undertaken. Below stage of work completion is required to meet the norms.
Unit 1 (660 MW): April 2020
- Sulphur dioxide control
- Critical

- Sept-19
  - Electrical and C&I work completion
- Dec-19
  - Plumbing work completion
  - Procurement of raw material and storage – lime, etc.
- Apr-20
  - Connecting to main plant

2019
2020

Source: Central Electricity Authority, 2019

Unit 2 (660 MW): June 2020
- Sulphur dioxide control
- Critical

- Sept-19
  - Completion of Absorber construction
- Dec-19
  - Electrical and C&I work completion
- Jun-20
  - Connecting to main plant
- Mar-20
  - Plumbing work completion

2019
2020

Source: Central Electricity Authority, 2019

Unit 3 (660 MW): Feb 2020
- Sulphur dioxide control
- Critical

- Sept-19
  - Electrical and C&I work
- Dec-19
  - Plumbing work
  - Procurement of raw material and storage – lime, etc.
- Feb-20
  - Connecting to main plant

2019
2020

Source: Central Electricity Authority, 2019

Disclaimer – The analysis/timelines mentioned in this document for preparing action plan has been made based on the inputs provided by various technology suppliers.