

# ROSA THERMAL POWER STATION

**R**osa thermal power station is located in Shahjahanpur village in northern part of U.P. The plant has four units each of 300 MW (See Table 1: Compliance deadlines for units in Rosa thermal power station). It sources coal through railways from nearby NCL coal mines and water from Upper Ganges canal.

Data Quality- CSE finds the CEMS data to be highly underreported. Based on the coal quality and plant efficiency, CSE stoichiometrically estimates sulphur dioxide

emissions to be over 1000mg/N.cu.m but CEMS data reports emissions in the range of 280 - 400 mg/N.cu.m. Achieving sulphur dioxide emissions below 600 mg/N.cu.m without proper control technology is not feasible. Similarly, CEMS data for oxides of nitrogen is severely underreported, even with installation of NO<sub>x</sub> control system like SCR technology, achieving emissions as low as 88mg/N.cu.m is not possible.

**Table 1: Compliance deadlines for units in Rosa thermal power station**

Tender must be awarded latest by end of this year to ensure compliance

● Unit No. ■ Capacity in MW ■ Commissioning Year ■ Compliance deadline



Source: Central Electricity Authority, 2019

## EMISSIONS AND SUGGESTED TECHNOLOGY:

● **Particulate matter:** The plant reports to comply with the limits of particulate matter emissions (see Table 2: Particulate Matter emissions in Rosa thermal power station). However, the CEMS data of sulphur dioxide and oxides of nitrogen have underreported emissions. Hence, to avoid discrepancies in data, frequent assessments of PM emissions through independent labs should be carried out to cross check any underreporting by CEMS.

**Table 2: Particulate Matter emissions in Rosa thermal power station**

Plant reports compliance with PM norms

■ Unit No. ■ CEMS ■ Lab ■ Norm

1	42	NA	50	3	36	NA	50
2	NA	NA	50	4	37	NA	50

Source: Centre for Science and Environment, 2019

● **Sulphur dioxide:** As per stoichiometric analysis based on coal quality plant is emitting over 1000 mg/N.cu.m. It violates limits of sulphur dioxide emissions by over 50 per cent. CEMS is also underestimating the emissions (see Table 3: Sulphur Dioxide emissions in Rosa thermal power station). To meet the norm of 600mg/N.cu.m, the plant will need to install DSI system or partial FGD.

**Table 3: Sulphur Dioxide emissions in Rosa thermal power station**

All the units require up-gradation

■ Unit No. ■ CEMS ■ Lab ■ CSE's estimate ■ Norm

1	363	NA	over 1000	600	3	283	NA	over 1000	600
2	310	NA	over 1000	600	4	397	NA	over 1000	600

Source: Centre for Science and Environment, 2019

● **Oxides of nitrogen:** The CEMS data is severely under-reported by plant, even with installation of NO<sub>x</sub> control system like SCR, achieving emissions in the tune of 88mg/N.cu.m is not possible (see Table 4: Oxides of nitrogen emissions in Rosa thermal power station).

The plant has installed BHEL boilers and according to experts, boilers manufactured post-2003 are equipped with low-NO<sub>x</sub> burners and over-fire air system. Therefore, it will require only primary control measures such as combustion optimisation to meet the new norms. The plant seems to be in cognizance that it may have higher emissions as it has indicated to be preparing tenders for up-gradation of existing NO<sub>x</sub> control systems.

**Table 4: Oxides of nitrogen emissions in Rosa thermal power station**

All the units require up-gradation

■ Unit No. ■ CEMS ■ Lab ■ Norm

1	135	NA	300	3	88	NA	300
2	116	NA	300	4	111	NA	300

Source: Centre for Science and Environment, 2019

#### CURRENT STATUS:

● Pre-preparation for tendering of up-gradation of burner systems and installation of FGD is under process.

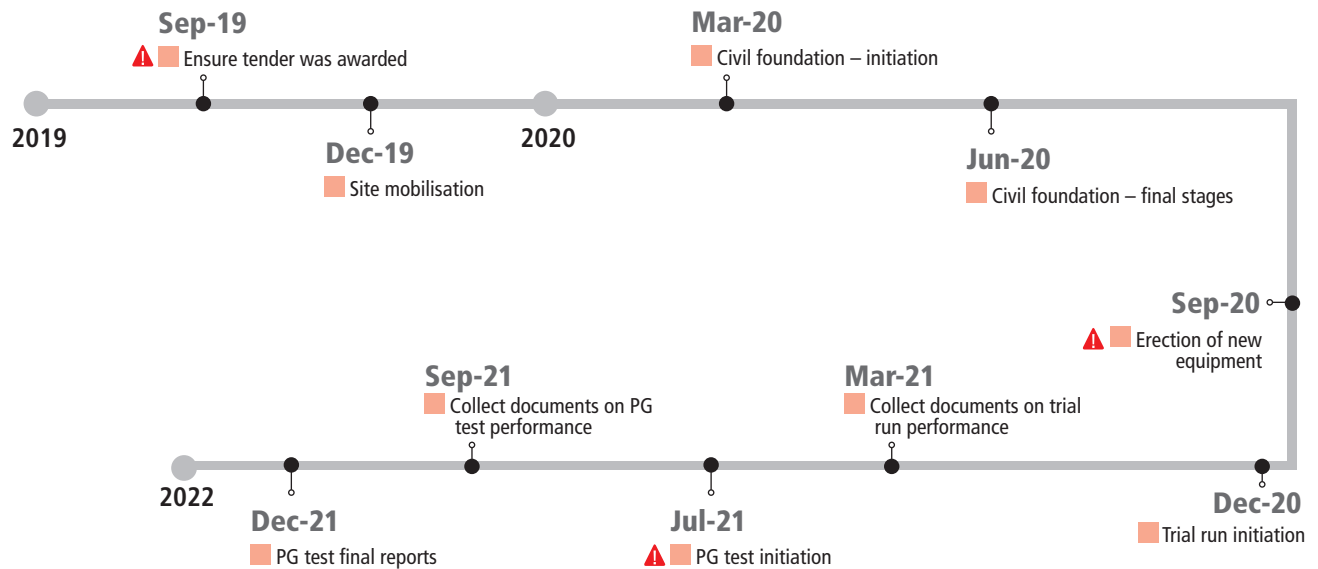
#### ACTION PLAN:

● 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.

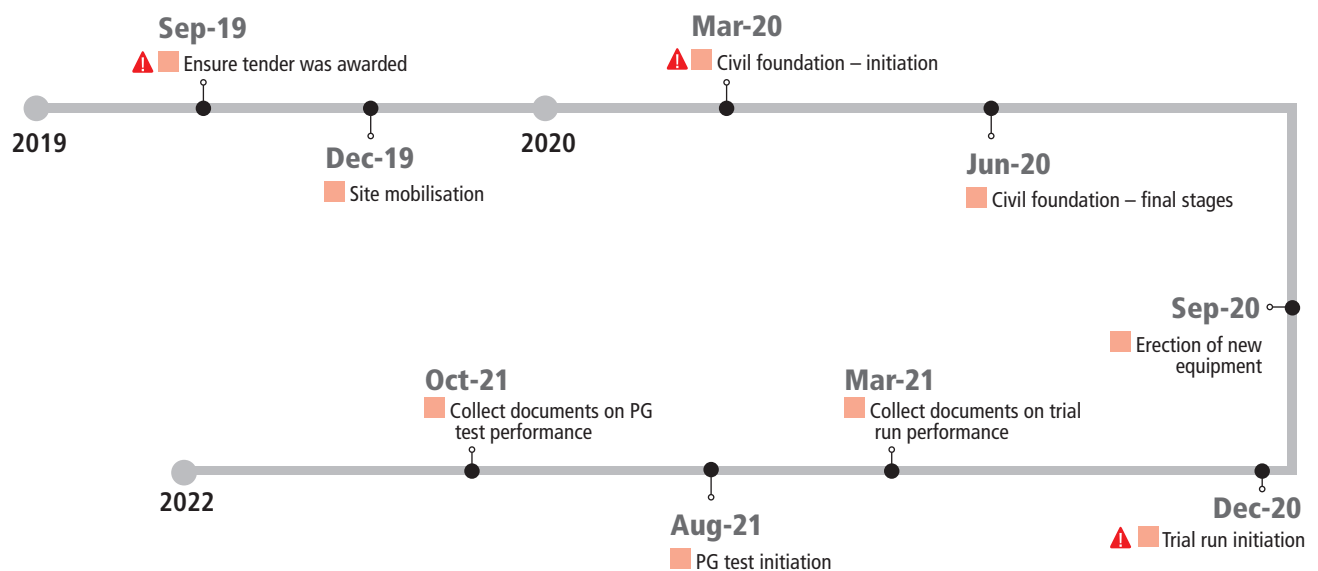
● The Action plan has been based on discussions with industry experts and manufacturers on time taken for various stages. We have converted the major project processes/stages into key milestones that can be used by PCB officials to track progress.

### UNIT 1 – 2 (2X300 MW):

■ Sulphur dioxide control ▲ Critical



### UNIT 3 – 4 (2X300 MW):



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

