

# PARICHHA THERMAL POWER STATION

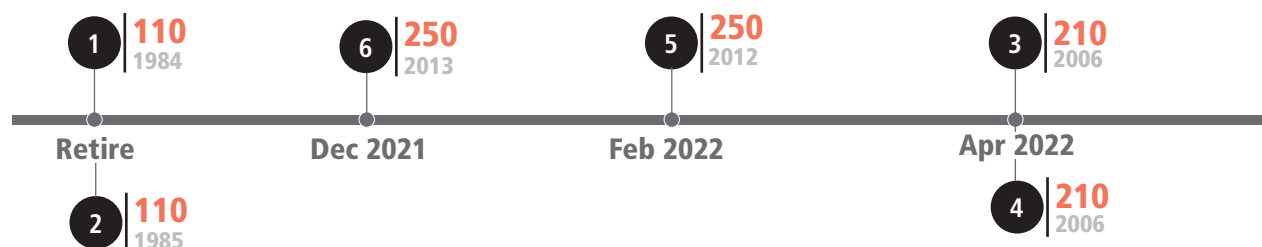
**P**arichha thermal power station has a capacity of 1,140MW with six units (see Table 1: Units in Parichha thermal power station). It was constructed in three phases by UPRVUNL. The plant is situated in Jhansi district and it sources coal through railways from BCCL, NCL, and CCL coal mines and water from Betwa River. Data Quality- Plant's CEMS data for SO<sub>2</sub> and NO<sub>x</sub> is

underreported. Based on coal quality data, CSE stoichiometrically estimates sulphur dioxide emissions of about 1830 mg/N.cu.m, but CEMS data reports one-sixth of the actual emissions. Similarly, without installation of NO<sub>x</sub> control systems like SCR, achieving emissions in the range of 100-200 mg/N.cu.m is not possible.

**Table 1: Compliance deadlines for units in Parichha 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 violates limits of particulate matter emissions (see Table 2: Particulate Matter emissions in Parichha thermal power station). Experts ascertain that the specific collection area of stage – II (Unit – 3 and 4) ESPs is not sufficient to meet the new emission norms of 50 mg/N.cu.m. Therefore, Stage – II ESPs need to be retrofitted. For Stage – III (Unit – 5 and 6), experts have stated that sufficient specific collection area is available. Hence, with minor up-gradations the norms can be met.

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

All the units require up-gradation

■ Unit No. ■ CEMS ■ Lab ■ Norm

1	NA	NA	100	3	72	108	50	5	60	78	50
2	NA	NA	100	4	81	114	50	6	66	69	50

Source: Centre for Science and Environment, 2019

● **Sulphur dioxide:** The CEMS data is observed to be underreported. Based on coal quality data, CSE stoichiometrically estimates emissions over 1000 mg/N.cu.m (see Table 3: Sulphur Dioxide emissions in Parichha thermal power station), but CEMS data reports one-sixth of the actual emissions. Plant is in cognizance with its high emissions as it has awarded tenders to install FGD systems.

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

All the units require up-gradation

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

1	NA	NA	1830	600	4	289	459	1830	600
2	NA	NA	1830	600	5	193	560	1830	600
3	310	442	1830	600	6	315	530	1830	600

● **Oxides of nitrogen:** The CEMS data is severely underreported, without installation of NO<sub>x</sub> control systems like SCR, achieving emissions in the range of 100-200mg/N.cu.m is not possible (see Table 4: Oxides of nitrogen emissions in Parichha thermal power station).

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

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

All the old units require up-gradation

■ Unit No. ■ CEMS ■ Lab ■ Norm

1	NA	NA	600	3	112	250	300	5	158	257	300
2	NA	NA	600	4	215	220	300	6	191	262	300

Source: Centre for Science and Environment, 2019

#### CURRENT STATUS:

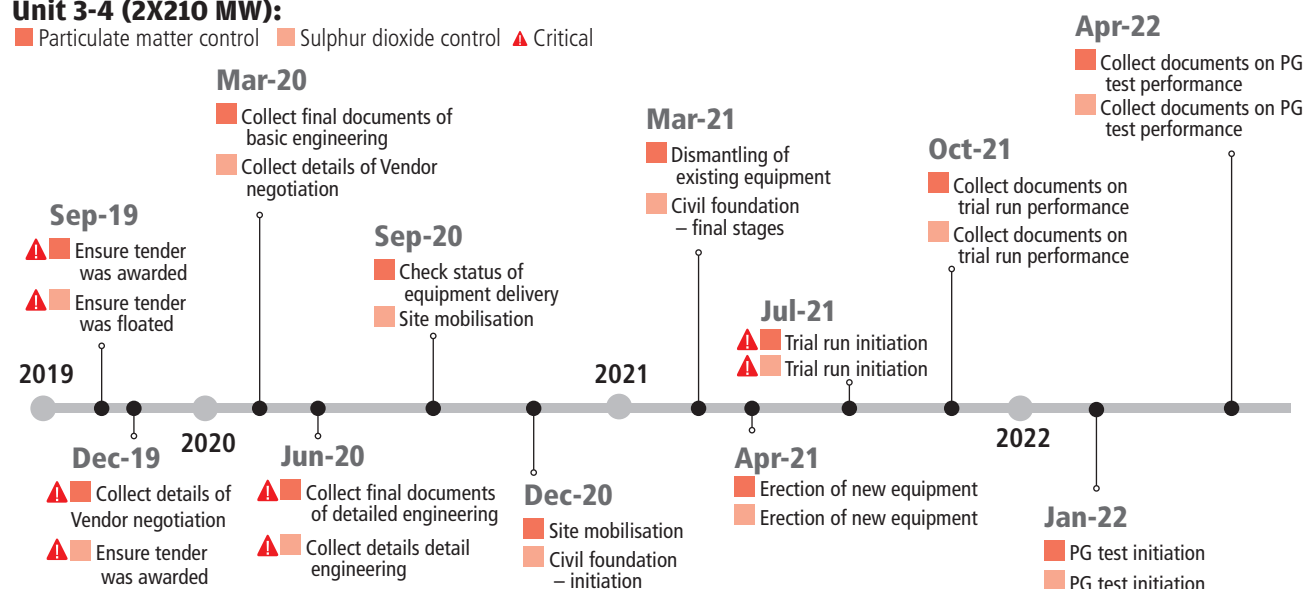
- Part-I (Techno-comm. Bid) opened on 22.02.2019 for ESP retrofit.
- As per CEA reports, bid has been opened for installation of FGD. No other information is available in public domain.

#### ACTION PLAN

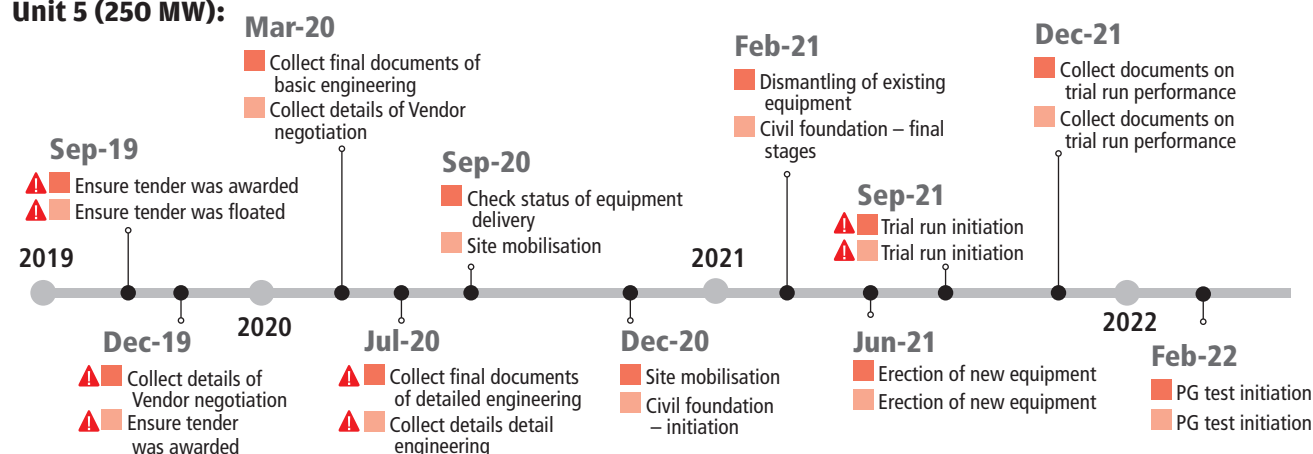
- CSE has prepared unit-wise action plan for all three pollutants. The action plan is based on deadlines given under Section 5 notices sent by the Central Pollution Control Board in December, 2017, which were also submitted to the Supreme Court. In turn, the deadlines were based on the Phase-in Plan 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 3-4 (2X210 MW):

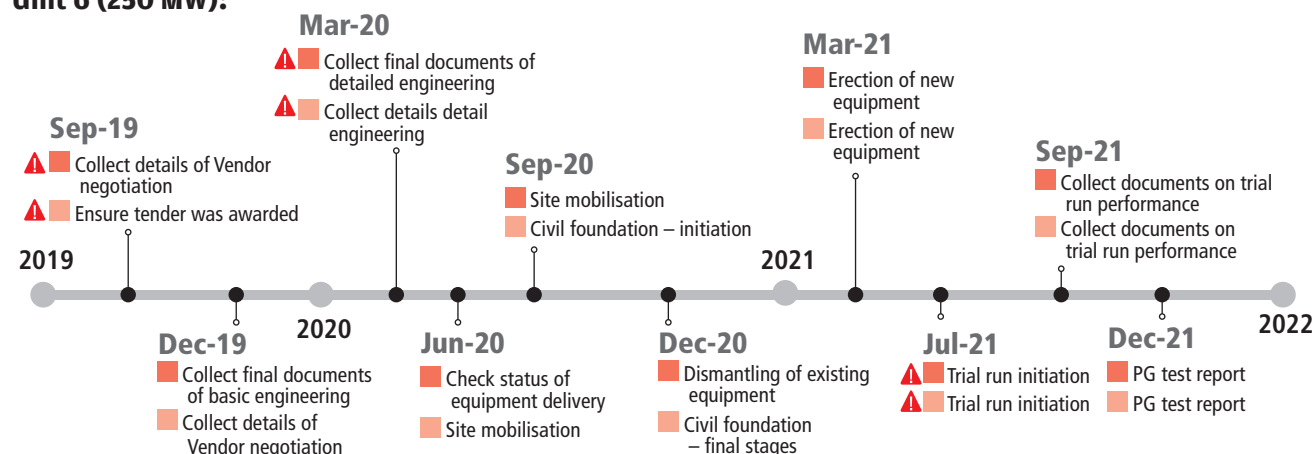
■ Particulate matter control ■ Sulphur dioxide control ▲ Critical



### Unit 5 (250 MW):



### Unit 6 (250 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.

