

OBRA THERMAL POWER STATION

Obra thermal power station is a 1000 MW plant with five units of 200 MW each (see Table 1: Compliance deadlines for units in Obra thermal power station). It is operated by UPRVUNL. The plant is situated in the critically polluted area of Singarauli – Sonbhadra, where moratorium on expansion or establishment of new project prevailed. It sources coal from nearby NCL coal mines and water from Rihand dam.

Data Quality- CEMS data is not available. Lab results show that the sulphur dioxide emissions are within the norms, but based on coal quality data, CSE stoichiometrically estimates emissions to be around 1600 mg/N.cu.m. But, the lab reported sulphur dioxide emissions

in the range of 500-700mg/N.cu.m. As both PM and SO₂ emissions are at a staggering level, such low levels of NO_x emission (300 – 400 mg/N.cu.m) is highly unlikely.

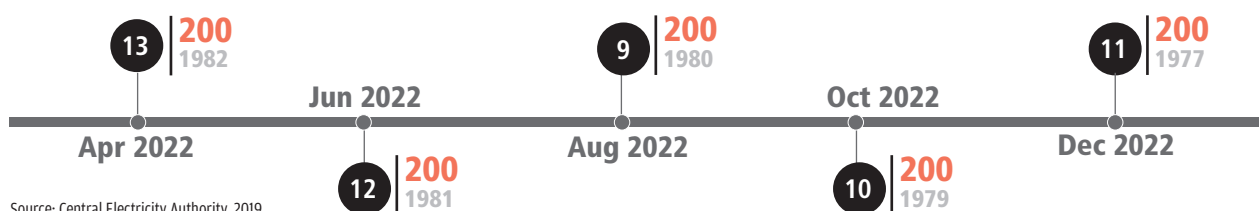
The plant has operated over 30 years. CSE suggests two options as it is a pit-head station:

- The plant can be run as back-up. However, it will have to ensure that all necessary control technologies are in place; or
- The plant can consider early retirement by 2022. The 2x660 MW Obra C is expected to be synchronized by December 2020. This could be used as an opportunity to retire units 9 to 13.

Table 1: Compliance deadlines for units in Obra thermal power station

Tender must be awarded latest by 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 Table2: Particulate Matter emissions in Obra thermal power station). Unit 12 and 13 are committed to up-grading their ESPs along with the R&M. Minor up-gradations will be required in units 9 to 11.

Table 2: Particulate Matter emissions in Obra thermal power station

All the units require up-gradation

■ Unit No. ■ CEMS ■ Lab ■ Norm

9 ^I	NA	114	100	11 ^I	NA	109	100	13 ^I	NA	1622	100
10 ^I	NA	112	100	12 ^I	NA	R&M	100				

Source: Centre for Science and Environment, 2019

● **Sulphur di oxide:** Lab results show that the emissions are within the norms, but CSE based on coal quality data, stoichiometrically estimates emissions around 1600 mg/N.cu.m, which is one-third reported by the independent lab (see Table 3: Sulphur Dioxide emissions in Obra thermal power station). The plant will require installation of dry sorbent injection technology (DSI) to meet the norms.

Table 3: Sulphur Dioxide emissions in Obra thermal power station

All the units require up-gradation

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

9 ^I	NA	598	1600	600	12 ^I	NA	R&M	1600	600
10 ^I	NA	580	1600	600	13 ^I	NA	659	1600	600
11 ^I	NA	608	1600	600					

Source: Centre for Science and Environment, 2019

● **Oxides of nitrogen:** According to lab data, the plant complies with the oxides of nitrogen limit (see Table 4: Oxides of nitrogen emissions in Obra thermal power station), but CSE opines, that since PM and SO₂ emissions are at a staggering level. There is a probability that NO_x emissions are beyond the limit as well. Since these units have old boilers, low-NO_x burners and over-fire air systems needs to be installed to meet the norms.

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

Such low emissions are not possible

■ Unit No. ■ CEMS ■ Lab ■ Norm

9 ^I	NA	344	600	11 ^I	NA	327	600	13 ^I	NA	344	600
10 ^I	NA	335	600	12 ^I	NA	R&M	600				

Source: Centre for Science and Environment, 2019

CURRENT STATUS

● Re-tender for pre award consultancy services/feasibility study has been floated on 25.02.2019

ACTION PLAN

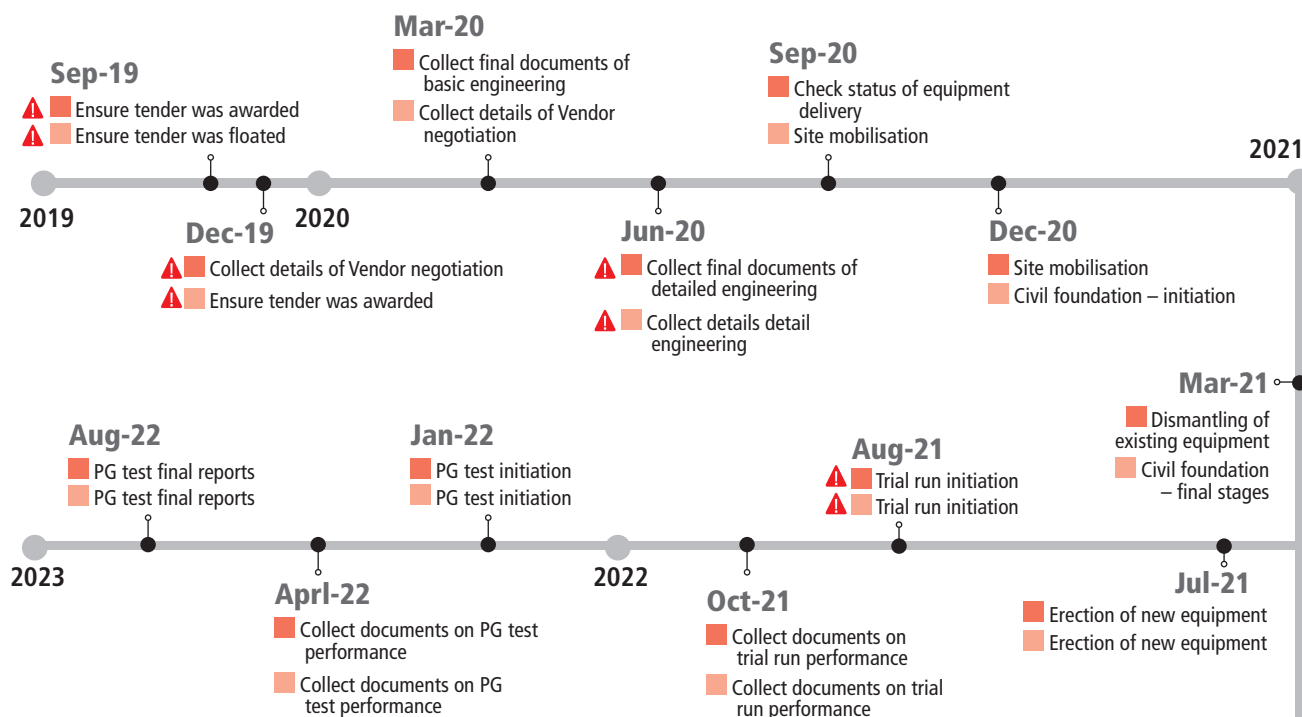
● CSE has prepared unit-wise action plan for all three pollutants. The action plan is based on deadlines given under Section 5 notices sent by the Central Pollution Control Board in December, 2017, which were also submitted to the Supreme Court. In turn, the deadlines were based on the Phase-in Plan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

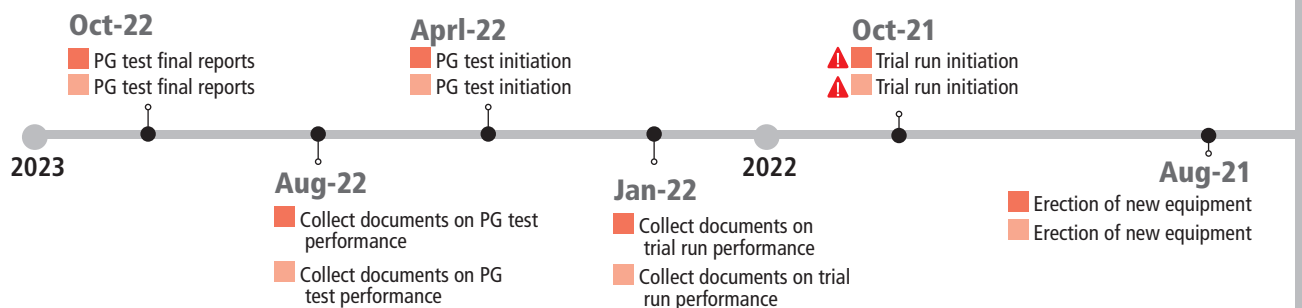
● A fair share of activities has been presumed to have already been undertaken. Below stage of work completion is required to meet the norms.

Unit 9 (200 MW)

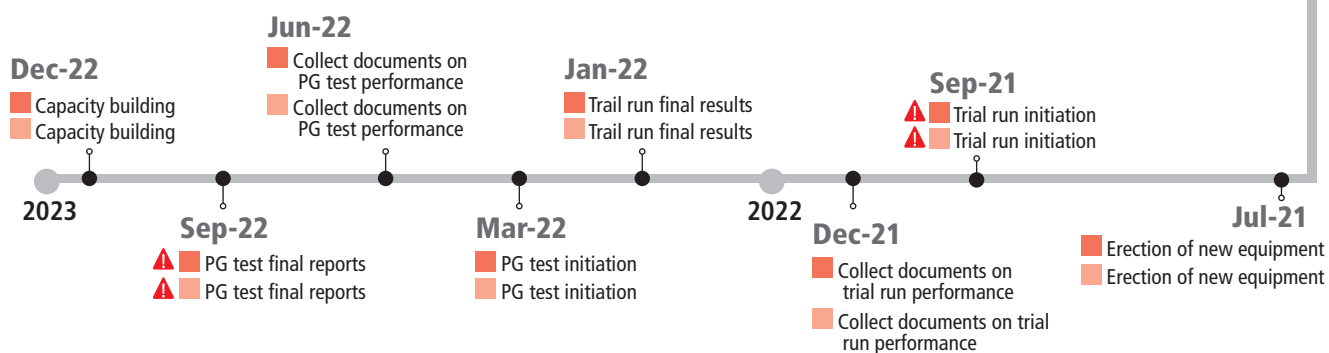
■ Particulate matter control ■ Sulphur dioxide control ▲ Critical



Unit 10 (200 MW)

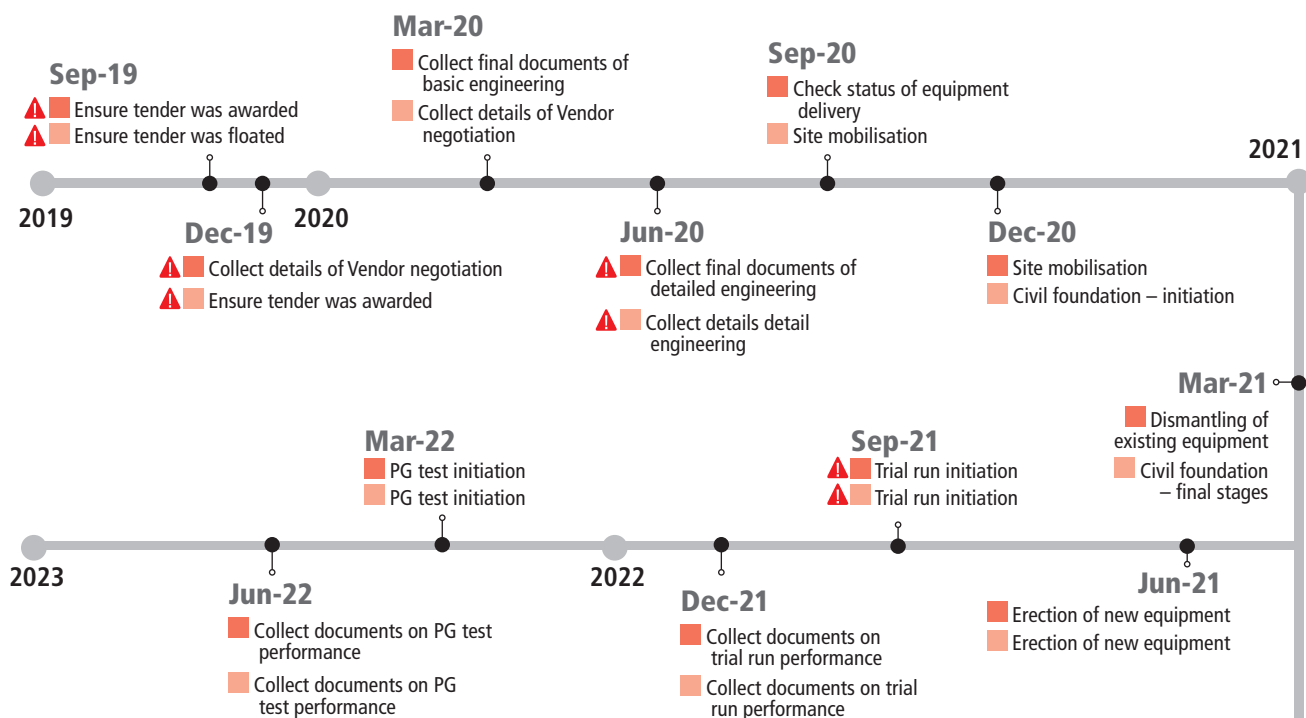


Unit 11 (200 MW)

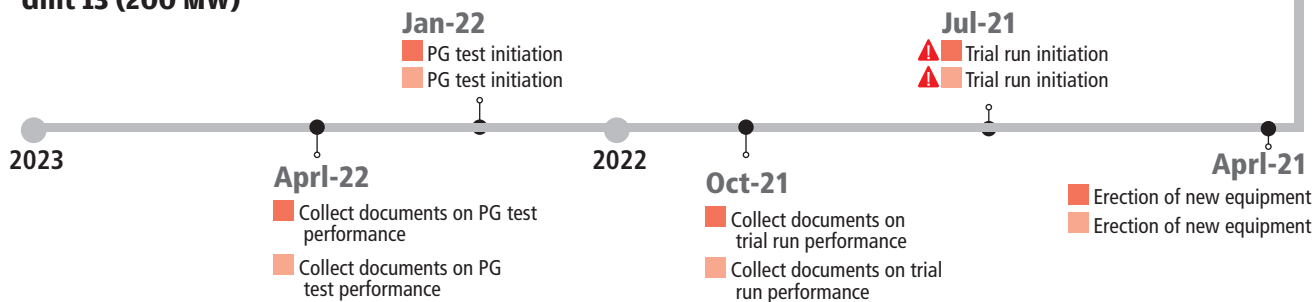


Unit 12 (200 MW)

■ Particulate matter control ■ Sulphur dioxide control ▲ Critical



Unit 13 (200 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.